GNEB
The Good Neighbor Environmental Board

Fifth Report of the Good Neighbor Environmental Board

to the President and Congress of the United States

December 2001

Notice: This report was written to fulfill the mission of the Good Neighbor Environmental Board (the Board), a public advisory committee authorized under Section 6 of the Enterprise for the Americas Initiative Act, 7 U.S.C.Section 5404. It is the Board's Fifth Report to the President and Congress of the United States. The U.S. Environmental Protection Agency (EPA) manages the operations of the Board. However, this report has not been reviewed for approval by EPA and, hence, the report's contents and recommendations do not necessarily represent the views and policies of EPA, nor of other agencies in the Executive Branch of the federal government, nor does mention of trade names nor commercial products constitute a recommendation for use.

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An electronic copy of this report can be found at www.epa.gov/ocem/gneb-page.htm.

Cover photo: Colorado River near Yuma, Arizona. Rockwood Head Gates, constructed in 1919 of river mud and concrete, served as the diversion of the Colorado River into the Alamo Canal. The Alamo Canal provided irrigation water to Mexicali and Imperial Valley prior to the construction of the All American Canal in 1942. **Photo credit: Rebekah Hoffacker, EPA.**

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The President
The Vice President
The Speaker of the House of Representatives

On behalf of the Board, I am pleased to present this Fifth Report of the Good Neighbor Environmental Board to the President and Congress of the United States. The Report reflects extensive discussions on the part of the Board Members about the needs of the border region, as well as considerable input from the public.

Our recommendations this year focus on three areas: water resources, air quality, and hazardous materials. In all three areas, we recommend that the federal government continue to support existing exemplary partnerships at all levels. Moreover, given the continual changes and new pressures the region faces, we also advise that resources be made available to enable new partnerships to get under way to address these additional challenges.

The Board appreciates the opportunity to offer these recommendations and respectfully requests a response. It intends to monitor follow-up to its recommendations and welcomes ongoing dialogue with the Executive Branch and Congress on the implementation process.

Respectfully yours,

Judith M. Espinosa,
Chair

Contents

GNEB
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The **Good Neighbor Environmental Board** is an independent federal advisory committee. Its mission is to advise the President and Congress of the United States on good neighbor practices along the U.S. border with Mexico. Its recommendations are focused on environmental and infrastructure needs within the U.S. states contiguous to Mexico. Good Neighbor does not carry out any specific border program. Rather, its role is to step back as an expert, concerned observer and strategically analyze the big picture when it comes to the problems the border region faces, as well as the opportunities at hand.

Board members include representatives from eight federal government agencies and from each of the four U.S. border states - Arizona, California, New Mexico, and Texas. The combined expertise at the table reflects perspectives from many U.S. sectors including: federal, tribal, state, and local governments; non-governmental; academic institutions; and businesses. Good Neighbor also confers regularly with Mexican organizations including The Region 1 National Advisory Council for Sustainable Development (Consejo). It meets three times a year at various border locations.

Good Neighbor submits its advice to the U.S. President and Congress in the form of reports containing recommendations for action. Its first report was published in 1995. Since that time, it has continued to provide an objective, consensus-based voice on strategic approaches for addressing U.S.-Mexico border issues. Recurring themes in its guidance include the following: focus on areas of greatest need; better integrate existing projects; support new initiatives that provide added value; involve many different organizations early on and throughout the process; and institute an underlying, environmentally-sustainable framework as the basis for making decisions.

The Good Neighbor Environmental Board is managed by the U.S. Environmental Protection Agency under the provisions of the Federal Advisory Committee Act (FACA). Its meetings are open to the public. For more information, contact the Designated Federal Officer of the Good Neighbor Environmental Board at (202) 564-9741.

Preface

The year 2001 was one of extraordinary and sometimes tragic events, both global and personal. In August, the Board tragically lost one of its most highly-respected and dedicated members, Linda B. Smith. Linda greatly enriched the Board's work through her private sector experience as Manager of Environmental Affairs for H-E-B Grocery in San Antonio, Texas. Her expertise, wisdom, and warmth will be greatly missed. We dedicate this report, the Fifth Report of the Good Neighbor Environmental Board (the Board) to the President and Congress of the United States, to her.

The Good Neighbor Environmental Board accomplished much during 2001. Perhaps one of its greatest achievements was to become even more widely recognized as a credible, non-partisan voice of authority on border-region issues. In keeping with its role as a federal advisory committee to the U.S. President, the Board held three public meetings at different locations along the U.S.-Mexico border this past year: Yuma, Arizona on March 21-22; San Diego, California on July 25-26; and Laredo, Texas, on October 10-11. Each meeting featured updates from Board members, presentations from guest speakers, remarks from local community officials, and a public comment session. All three meetings were extremely well attended and got good media coverage, ranging from local television stations to an article in the *Los Angeles Times*.

Board members' face-to-face discussions with senior administration officials were one of the year's highlights. One such encounter took place on August 7, when Board Chair Judith Espinosa and several members met with U.S. Environmental Protection Agency (EPA) Administrator, Christine Todd-Whitman. That same day, Board members from border state governments also met with Judith Ayres, Assistant Administrator for EPA's Office of International Activities, to discuss the role of states in the new phase of the binational border environmental program, the successor to Border XXI. On October 4th, when EPA Administrator Whitman traveled to the border to meet with Mexican Environment Secretary Victor Lichtinger in El Paso and Juarez, the Board was represented at an invitation-only meeting with key stakeholder groups. These discussions and others enabled the Board's voice to be heard at senior levels of policymaking.

Board members also maintained their close working relationships with a range of institutions on both sides of the border during the year. They participated in meetings of groups including the following: the Border Environmental Cooperation Commission (BECC), the North American Development Bank (NADBank), the U.S.-Mexico Chamber of Commerce, the International Boundary and Water Commission (IBWC), the Border Trade Alliance, the Southwest Center for Environmental and Research Development (SCERP), the Binational Border Governors Conference, the Binational Health Commission, the U.S.-Mexico Binational Commission, and a number of other border-region, national, and binational institutions.

While Board members primarily represented their own professional organizations at these events, they also used the opportunity to discuss the work of the Board, distribute its most recent report, and obtain informal public input on border policies. Afterwards, they brought news and updates back to the Board in the form of report-outs at each of the Board's public meetings.

Another key component of the Board's communications and outreach during the year was its continued interaction with its counterpart Mexican advisory group. The mission of this counterpart group, the Region 1 National Advisory Council for Sustainable Development (Consejo Region 1), was to advise Mexico's national environmental agency, the Mexican Ministry of the Environment and Natural Resources (SEMARNAT). Members from Consejo Region 1 and Good Neighbor attended each other's meetings to exchange information on border region policy developments and environmental infrastructure projects. During the last quarter of the year, after Consejo Region 1 was disbanded, Good Neighbor began to communicate with a newly-established Mexican advisory group set up by the Fox Administration, called the Advisory Council for the Sustainable Development of the Northern Border.

Continuing its traditional emphasis on interaction with border-region communities, Good Neighbor served a vital role in gaining public input on one of the year's most significant border-region policy discussions, the evolution of BECC and NADBank. Fernando Macias, General Manager of BECC, and Jorge Garces, Deputy Director of NADBank, both spoke at the Board's meeting in San Diego, where they fielded questions and comments from both Board members and public attendees. In addition, for its last meeting of the year in Laredo, Texas, the Board set aside a portion of its public comment session to co-host a special public comment session with the State Department, EPA, and the Department of the Treasury. The meeting was one of a series that took place at different border locations. Its purpose was to listen to the public's views on how to strengthen BECC and NADBank's performance as part of a charge by Presidents Bush and Fox to seek public input on this topic.

In a slight departure from tradition, the Board decided to supplement its annual report to the President Bush and also make its views on particular issues known during the year through issuing interim comment letters. The bulk of the letters commented on the unfolding discussion related to BECC and NADBank. The others focused on funding for the Border Environmental Infrastructure Fund (BEIF), and the value of maintaining dialogues with a counterpart Mexican advisory group.

Membership

During 2001, the already-diverse composition of the Board became even more so. At year's end, the collective expertise of its 23 U.S. members spanned a wide range of sectors: state and local government; the non-profit sector; businesses; environmental justice interests; tribal interests; academic institutions; the ranching and grazing sector; and federal agencies including the Departments of Agriculture, Health and Human Services, Interior (U.S. Geological Survey), State, and Transportation, as well as the U.S. Environmental Protection Agency (EPA), and the U.S. Commissioner of the International Boundary and Water Commission. Many Board members live in one of the four U.S. border states and continue to bring first-hand experience of daily life along the border to the group's deliberations.

As individual members stepped down, others were appointed to fill the vacancies. During the last part of 2000, Pat Banegas from the Water and Sanitation District of Anthony, New Mexico, and Mark Spalding of the University of California - San Diego, stepped down. During 2001, in addition to the untimely death of member, Linda Smith, several members tendered their resignations: John Bernal from the IBWC, Bess Metcalf from the Rio Grande-Rio Bravo Coalition, David Randolph from the State Department, and Marc Sixkiller Ayuvoo from the Pala Tribe of Indians. New members were appointed, beginning with the appointment of Jerry Paz from Molzen-Corbin & Associates in Las Cruces, New Mexico early in the year. During the summer, Dennis Linskey joined the Board as its State Department representative and Carlos Ramirez as the U.S. representative from the IBWC.

In mid-October, Administrator Whitman appointed five new members to the Board: Larry Allen, who serves on the board of a conservation-focused ranching and grazing organization called the Malpai Borderlands Group; Gedi Cibas, Manager of Border Programs for the New Mexico Environmental Department; Bill Fry, Vice President of Quality Assurance and Environmental Affairs for H-E-B Grocery in San Antonio, Texas; Dale Phillips, Vice Chair of the Cocopah Tribe; and Diane Rose, Mayor of the City of Imperial Beach, California.

Introduction

Despite the Nation's understandable singular focus on national security during the last quarter of the year, the year 2001 proved to be a time in which the U.S.-Mexico border region received heightened attention. And although other border-region issues such as immigration and drugs continued to dominate the border news headlines, environmental issues, especially water supply and quality, also received in-depth coverage. This increased interest in border matters was perhaps best symbolized by *Time* magazine's June 11th cover story, entitled, simply, "Welcome to Amexica." The article pointed out to its national audience what border residents have always known: that the fates of communities along both sides of the U.S.-Mexico border are inextricably linked, and that the condition of the U.S. border region affects the condition of the nation.

New administrations in both Mexico and the United States provided opportunities for new border-region partnerships as well as support for existing ones. In January, George W. Bush, former Governor of the U.S. border state of Texas, was inaugurated as the 43rd President of the United States. He appointed former New Jersey Governor, Christine Todd Whitman to be Administrator of the U.S. Environmental Protection Agency (EPA). President Bush's first state visit abroad was to the Guanajuato ranch of Mexican President Vicente Fox, who had been sworn in as Mexico's President in November, 2000. President Fox had appointed former Baja California Governor Ernesto Ruffo Appel as his "Border Czar" and had announced the launch of his National Crusade for Forests and Water. To further symbolize the closer working relationship between the two countries, in September, the first state visit of the Bush Administration was from President Fox.

Border-region environmental policies were scrutinized at the highest levels. Topping the list were the operations of two key border institutions created by the North American Free Trade Agreement (NAFTA), the Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank). This re-examination initially was within a context of mission expansion, but then shifted to a reassessment in more fundamental terms.

In September, during the annual U.S.-Mexico Binational Commission meeting, the activities of BECC and NADBank were elevated to the level of direct attention by the two Presidents. They agreed that immediate measures were needed to strengthen the performance of the two institutions, requesting that a binational working group develop joint recommendations and report back by October 31, 2001. The U.S. agencies within this working group were EPA, the Department of State (including the U.S. Commissioner of the IBWC), and the Department of Treasury. Public input sessions took place along both sides of the border, resulting in recommendations from a wide range of individuals and organizations. The input reconfirmed the importance of identifying and funding border environmental infrastructure projects and recommended numerous actions to reform the BECC and NADBank.

EPA Administrator Christine Whitman and Secretary Victor Lichtinger of Mexico's Secretaria del Medio Ambiente y Recursos Naturales (along with Chihuahua Governor Patricio Martinez) at their October 4, 2001 meeting with non-governmental organizations and other stakeholders during their visit to El Paso-Ciudad Juarez. Discussion focused on the development of the next binational border program.
Photo credit: Allyson Siwik, EPA.

Communication between the U.S. and Mexican environmental departments remained strong, as EPA Administrator Whitman met with her Mexican counterpart, Mexican Ministry of the Environmental and Natural Resources (SEMARNAT) Secretary Victor Lichtinger, at several multilateral events during the year. On October 4th, the Administrator and Secretary traveled to El Paso-Ciudad Juarez to meet with states, tribes, and local stakeholder groups, as well as to tour a local school and wastewater treatment plant together. At the end of the meeting, the two leaders issued an announcement of principles to guide the U.S. and Mexico as they develop the next phase of the border plan, formerly called Border XXI. Strategies under discussion include the following: a more decentralized and regional approach that would operate through a regional workgroup structure; greater transparency and public participation; clear priorities; efficient use of resources; participation from a variety of sectors besides the environmental sector; and empowering state and local governments, as well as U.S. tribes, to establish their own priorities.

In concert with this nation-to-nation communication, both fledgling and more seasoned state-level environmental partnerships in the border region were working together. One of the most noteworthy among these collaborative efforts was a meeting that took place June 7-8 in Tampico, Tamaulipas, Mexico. There, during the 19th Binational Border Governors' Conference, the governors of all ten U.S. and Mexican border states issued a Joint Declaration that included a section on the environment, calling for cooperation on conservation and sustainable management of the region's water resources.

In September, agency representatives from the ten U.S.-Mexico border states reconvened in Monterrey, California, for their fifth annual meeting. The ten states agreed by consensus to: 1) submit to EPA and SEMARNAT a proposal for regionalizing the next phase of the binational border program, formerly called Border XXI; 2) submit Ten State recommendations to the federal governments of the U.S. and Mexico to improve the performance of the BECC and the NADBank and 3) urge the federal governments of the U.S. and Mexico to agree to trans-boundary notification of projects that may have significant binational environmental impacts.

Such state-to-state trans-boundary cooperation was echoed on other levels. Sister cities continued their work on air quality, emergency response, and a host of other matters. Non-governmental organizations, the private sector, and tribes also made contributions to safeguarding the economy and the environment within the region. These efforts were supported both within and across U.S. border states by federal, state, and local agencies.

Academic institutions did their part by continuing to contribute research and analysis. These were communicated through events such as Encuentro Fronterizo in April, Border Institute III Rio Rico in May, and the U.S.-Mexico Border Summit in August, which was sponsored by the University of Texas - Pan American in Edinburgh.

Finally, it is obvious that any overview of environmental infrastructure activities in the border region during the year 2001 would be incomplete without mentioning that the September 11th attacks, the ensuing anthrax cases, as well as the so-called downturn in the U.S. economy undoubtedly affected border region activities. Moreover, they will continue to do so. An analysis of precisely the magnitude and specific nature of these effects is outside the purview of the Good Neighbor Environmental Board (the Board). However, undeniably, the Board's continued call for community involvement, partnerships and a strategic approach should remain the foundation of federal policy making for the U.S.-Mexico border region, especially at this point in time. It would be a disservice to the region and the nation as a whole should immediate and understandable concerns distort the broader policy picture and policy priorities. Longer-term sustainable goals must continue to guide federal policy makers for the benefit of all.

For this, its Fifth Report to the President and Congress, the Good Neighbor Environmental Board has opted to focus its recommendations on three high-priority areas: water resources, air quality, and hazardous waste. The report also contains a special section on the link between the region's environmental quality and the health of its residents. A business report is included.

Several underlying themes cut across the recommendations in all three areas. The first is the value of continued binational cooperation that incorporates partnerships at all levels and across all sectors. The second is the continued need for strategically-applied federal funds to maintain existing environmental infrastructure and build new infrastructure where needed. Finally, third, the Board calls on the federal government to continue assisting local communities with education and training so that they are empowered to fully exercise their critical role.

The Watershed Approach: Is it Gaining Momentum?

In its last report, the Fourth Report to the President and Congress of the United States, the Good Neighbor Environmental Board recommended that a watershed approach be adopted throughout the border region. While much more remains to be done to institutionalize that approach, progress *has* been made since that time, as the following examples illustrate.

Binational cooperation on a watershed approach was put into the spotlight when the United States and Mexico issued a joint statement on September 5th, following their annual Binational Commission meeting, which took place this year in Washington, D.C. President Bush and President Fox discussed the issue of water resources, including treaty compliance, agreeing that compliance could be well served by greater cooperation aimed at more effective watershed management and improved infrastructure, including the formation of a joint advisory council.

Several binational projects served to underline the move toward greater cross-border cooperation. For instance, the Upper San Pedro watershed plan announced by the United States and Mexico represents an unprecedented collaboration that shares funds, information, and conservation expertise between land and resource managers in both countries. And on a binational local level, the Arizona Department of Environmental Quality constructed a binational watershed map for the twin cities of Nogales, Arizona and Nogales, Sonora to facilitate planning.

On a U.S. national level, encouragement to pursue watershed-based principles also was forthcoming. In her remarks given at the Spring 2001 Legislative Conference of the National Association of Conservation Districts, EPA Administrator Whitman made the following statement: "...There is much that can be done to improve the health of our waters, but I believe the key to success lies in taking a watershed protection approach to controlling non-point source pollution, the leading uncontrolled source of water pollution in the United States. In my home state of New Jersey, we adopted watershed management as the cornerstone of our clean water program. In my last year as governor, I proposed a far-reaching water management rule designed to protect our watersheds by ensuring that development and other activity occurred in ways that our watersheds could handle..."

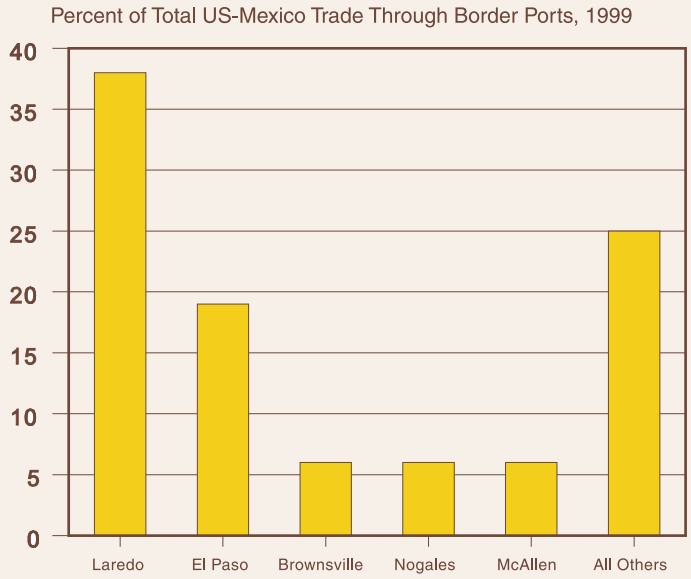
EPA's own watershed websites have remained alive and well. The Watershed Information Network at www.epa.gov/win provides introductory information to watershed management. Its Surf Your Watershed site at www.epa.gov/surf provides details about specific watersheds. And the watershed home page of the Office of Wetlands, Oceans, and Watersheds at www.epa.gov/OWOW/watershed includes information on EPA regulations and activities related to watersheds.

Interstate cooperation was in evidence through a new Council that emerged during the year, the Paso del Norte Watershed Council. The group was formed in March 2001 by several governmental and non-governmental groups in the El Paso, Texas -Las Cruces, New Mexico area for the purpose of improving the Rio Grande ecosystem while balancing the needs of all stakeholders. Another interstate partnership was launched that same month during the Sacramento, California visit by President Fox, when the California EPA signed an agreement with SEMARNAT to cooperate on the protection of the Sea of Cortez in the Gulf of California.

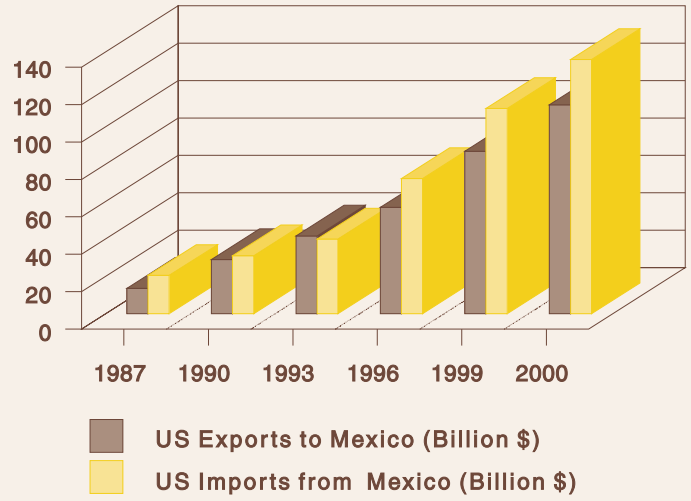
Several other encouraging initiatives, one binational and the other tri-national, have helped to add momentum in the direction of watershed-based thinking: the international agreements through IBWC Minutes 306 for the Colorado River delta, and Minute 307 for the Rio Grande water debt question, which provide opportunities for more effective watershed management; and the proposed 2002-2004 program for the Commission for Environmental Cooperation, which includes a component calling for work to be carried out in the area of sustainable watershed management.

Finally, research partnerships also made progress in providing the sorts of tools needed for binational watershed planning and cooperation. For example, the Texas Natural Resource Conservation Commission, the Natural Resources Conservation Service, and the U.S. Geological Survey made available large-scale watershed delineations that use standardized data and software. Having this type of tool available facilitates binational cooperation in that the information is readily available, easily reproducible, and presented in a standardized format that is compatible across different research systems.

Again this year, in its Fifth Report to the President and Congress of the United States, Good Neighbor reiterates its call for watershed principles and practices to guide water resources policy in the border region among its latest set of recommendations. Only with such an approach can the border region hope to sustain the water needs of its inhabitants over the longer term.



Source: U.S. Department of Commerce, from Laredo Development Foundation website, at www.globalpc.net/laredo-ldf/usmexico-trade.htm.
Site last visited on 7/6/01.



Source: Texas A&M University International, U.S. Department of Commerce, at Laredo Development Foundation website, www.laredo-ldf.com/weblarshare2000.html, last visited 7/6/01.

Trade has been booming in the U.S.-Mexico border region. The result has been unprecedented economic opportunities, and unprecedented environmental challenges, especially in heavily-used ports of entry. The border town of Laredo, Texas, alone handles 38 percent of all U.S.-Mexico ground-transported trade. In 1999, the Port of Laredo handled a total of $65 billion in trade–$30 billion in U.S. exports to Mexico and $35 billion in U.S. imports from Mexico.

2001 Recommendations at a Glance

As advisor to the President and Congress of the United States on environmental and infrastructure needs along the U.S. border with Mexico, we, the Good Neighbor Environmental Board, recommend that the following steps be taken:

WATER RESOURCES

Surface Water: 1) Support United States-Mexico discussions concerning compliance with water treaty obligations and encourage greater binational cooperation directed at more effective surface water supply management.

Groundwater: 2) Support efforts for increased collection and sharing of data about border region groundwater resources and encourage greater binational cooperation in border groundwater management.

Watersheds: 3) Support partnerships at all levels that promote strategic watershed principles and watershed management.

AIR QUALITY

Power Plants: 4) Establish formalized binational coordination and cooperative planning among U.S. and Mexican energy and environmental agencies to minimize adverse air quality impacts from power plants in the border region, while addressing binational energy needs.

Alternative Energy: 5) Promote energy conservation and development of alternative sources of energy in order to minimize impacts to air quality.

Infrastructure Fund: 6) Provide federal financing to remedy air quality health problems exacerbated by inadequate transportation infrastructure in the region. Such funding should be allocated to a binational entity capable of taking remedial action at the project level.

HAZARDOUS MATERIALS

Capacity-Building: 7) Direct financial, technological and human resources to assist local communities, including tribal communities, to prepare for and respond to hazardous materials incidents.

Training: 8) Increase awareness and training in the areas of hazardous waste identification, storage, and export for final disposition.

Resources: 9) Increase the availability of emergency response equipment and personnel.

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RECOMMENDATIONS IN CONTEXT

WATER RESOURCES

RECOMMENDATIONS

- **Surface water:** Support United States-Mexico discussions concerning compliance with water treaty obligations and encourage greater binational cooperation directed at more effective surface water supply management.

- **Groundwater:** Support efforts for increased collection and data sharing about border-region groundwater resources and encourage greater binational cooperation in border groundwater management.

- **Watersheds:** Support partnerships at all levels that promote strategic watershed principles.

Water supplies in the arid U.S.-Mexico border region are limited and often of poor quality. Intense competition for these increasingly limited supplies affects ecological integrity and threatens the quality of life for border residents. Agriculture historically has been the primary water user. However, rapid urban growth and industrialization are now consuming a greater percentage of available supplies, as water use shifts from primarily rural to primarily urban environments. Periods of drought pose significant challenges, due to both reduced water quantities and impact on water quality. In some areas, water management plans are being proposed to meet both rural and urban needs; but there are questions of whether these plans sufficiently provide alternatives for the water needs of the border-region ecosystems.

Thirty-five years of economic development policies in border communities have had a tendency to promote population growth. However, the policies and decisions to industrialize the U.S.-Mexico border region have been accelerated by the North American Free Trade Agreement (NAFTA), and an acceleration in population growth is also taking place. Border communities must now struggle to meet present and future water needs. Communities and their respective state governments have sought to meet these needs through a variety of mechanisms including: transfer of waters from other river basins, desalination, pumping of ground water, transfer of waters from agriculture to municipal use, and water marketing.

Fortunately, United States and Mexican leaders and border-region water policy makers are calling for strong partnerships at all levels to address what has become perhaps the region's most pressing issue. Presidents Bush and Fox, at their September 5, 2001 meeting, had a frank discussion about water resources, including treaty obligations. Within the context of discussing obligations related to the Rio Grande River, they agreed that both countries could be well served through greater cooperation on effective binational watershed management.

This binational attention was echoed on a state level. In Tampico, Tamaulipas, on June 8, 2001, the governors of the 10 adjoining U.S. and Mexican border states declared that water should be a priority issue for their binational agenda. They agreed to "work jointly to identify measures of cooperation on drought, management, conservation, and sustainable management of the water resources in the border region."

SURFACE WATER SUPPLIES

The two major surface water supplies for the region are the Colorado River and the Rio Grande. Both originate as alpine streams in the Rocky Mountains of Colorado, and are the lifeblood of mostly arid lands as they flow to their respective end points. The border region is the naturally occurring arid "end member" of these two major river systems, and available water has always been dependent on a variety of upstream conditions. Water demand continues to increase in the major population centers that draw drinking water from both drainage basins. Both river systems are subject to wet and drought climate cycles, despite numerous storage facilities existing in the basins in each country. In the last 10 years, drought has affected a larger part of the international reach of the Rio Grande as well as reduced border-region water supplies in both countries.

The Colorado River, with 94 percent of the basin in the United States, is often described as the most regulated river in the United States. The allocation and use of its waters is governed by a complex set of international and United States laws that date back to 1899 and collectively are known as the "Law of the River". Mexico administers its water allocation under its domestic laws. The river provides water for more than 25 million people, 3.7 million acres of irrigated land and 11.5 billion kilowatt-hours of hydroelectric power. At least 10 dams and 80 major diversions interrupt the river, under the oversight of dozens of federal and state agencies. The Colorado River also supplies water to a very diverse flora and fauna throughout its riparian reaches in the United States and Mexico, including its delta, before emptying into the Gulf of California.

Under the Colorado River Compact of 1922, the expected average annual yield of the Colorado River, 15 million acre feet, is equally divided between the upper basin states of Colorado, New Mexico, Utah and Wyoming, and the lower basin states of Arizona, California and Nevada. From these waters, the United States has the obligation, under the 1944 Water Treaty, to deliver to Mexico an annual allocation of 1.5 million acre feet of Colorado River water. Following the absence of flood flows in the 1960s through 1978, there have been flows into Mexico in excess of Mexico's 1.5 million acre feet allocation on 13 occasions.

Border-state demand on the waters of the Colorado River is intensive. Since 1996, demands in the three Lower Colorado River Basin states, driven primarily by increased uses in Arizona and California's use in excess of its 4.4 million acre feet annual allocation, exceeded the annual Colorado River Compact allocation for the lower basin total of 7.5 million acre feet. In 1999, a surplus water year, the lower basin consumed 8.2 million acre feet and 2.9 million acre feet flowed into Mexico. California's annual use has varied from 4.2 to 5.2 million over the last 10 years in an attempt to supply water to 16 million people and irrigate 800,000 acres. Recently, California made a commitment (2001) to reduce its use to California's normal allocation of 4.4 million acre feet, through water conservation and agriculture-to-urban water transfer arrangements over the next 15 years.

In Mexico, Baja California diverts Colorado River water to supply some three million inhabitants in Mexicali, Tecate, Tijuana and Ensenada via an aqueduct system. Tijuana faces a water shortage and has engaged in longer-term binational water supply planning with San Diego County. The immediate effort is that of having a standby arrangement in place to make emergency delivery of water to Tijuana from Mexico's allotment, conveying it through the southern California aqueducts. The other effort is the completion of a feasibility study for a binational aqueduct.

Tribal communities also rely on the Colorado River for their water needs. Thirty-four Indian reservations occupy 16.5 percent of the Colorado River basin. The tribal water rights, which date to the establishment of their reservations, or to more recent court decisions, have not yet been completely adjudicated. It is widely believed that the resolution of this issue will have an enormous impact on future water management in the Colorado River basin.

The Rio Grande, like the Colorado, is highly regulated. Unlike the Colorado, only about 54 percent of the Rio Grande Basin is in

For the first time in recent memory, the mouth of the Rio Grande became blocked with sediment during February 2001. Five months later, the IBWC dredged a 20-foot channel through the 440-foot sandbar.
Photo credit: Randy Blankinship, Texas Parks and Wildlife Department.

the United States, and storage structures exist in both the United States and Mexico. The waters of the Rio Grande, in its 1,254-mile international boundary, are allocated between the United States and Mexico, by the Convention of 1906 for the upper 90 miles, and by the 1944 Water Treaty from that point, known as Fort Quitman, to the Gulf of Mexico.

Below Fort Quitman, the 1944 Water Treaty allots to the United States all waters from tributaries in the United States and allots to Mexico all waters from tributaries in Mexico, except for flows arriving in the Rio Grande from six Mexican treaty tributaries. Mexico is allotted two-thirds of the flows from these six tributaries and the United States is allotted one third of those tributary flows as long as they are not less than 350,000 acre feet per year, averaged over five years. In addition, the treaty authorized the construction, operation and maintenance of international water utilization and control works on the Rio Grande, including the Amistad and Falcon international dams.

For the upper part of the Rio Grande in the United States, the Rio Grande Compact of 1938 administers the waters among the states of Colorado, New Mexico and Texas. The southern New Mexico and Texas allocation, including delivery of an annual volume of 60,000 acre feet of water for Mexico under the 1906 Convention, is managed through storage at the Elephant Butte and Caballo Dams, operated by the U.S. Bureau of Reclamation in southern New Mexico. For the Rio Grande below Fort Quitman, the United States Section of the International Boundary Water Commission (IBWC) administers United States waters based on international reservoir storage and water demands established by the State of Texas.

The Rio Grande sustains some 10 million people, 8 million of whom live in Mexico. Of these 8 million inhabitants, some 7 million are concentrated in 20 border cities. About 1.3 million of the approximately 2 million U.S. border residents depend on the river for drinking water. Some communities in the Upper Rio Grande and along the Tularosa basin use treated Rio Grande water for their drinking water. In addition, regional planning is underway for other communities, including Juarez, which depend solely on groundwater, to also use river water. Water storage at Elephant Butte and Caballo Dams supplies primarily irrigation water to the southern New Mexico and El Paso-Juarez area.

Below El Paso - Juarez, border communities along the Rio Grande in Texas, and the adjoining Mexican states of Chihuahua, Coahuila, Nuevo Leon and Tamaulipas - with few exceptions - rely heavily on the Rio Grande for their water. Some 1.5 million acres along the Rio Grande depend on its waters for irrigation. Water from the Rio Grande is often hydraulically connected to groundwater in adjacent alluvial flood-plain aquifers in many reaches of the river. This means that pumping water from wells adjacent to the river can reduce the quantity of water in the river channel.

As the river winds through its 1,254-mile long international boundary segment, it also supplies water to the diverse flora and fauna throughout its riparian reaches in the United States and Mexico before emptying into the Gulf of Mexico. In its lower reaches, the Rio Grande is the centerpiece of the Lower Rio Grande Valley National Wildlife Refuge system in southeastern Texas, considered to be one of the most biologically diverse areas in the continental United States.

GROUNDWATER SUPPLIES

A number of major and minor binational groundwater basins straddle the border: those in the Tijuana River, at California-Baja California, the Colorado River at Arizona-California and Baja California-Sonora, the Sonoita, Santa Cruz, San Pedro and Whitewater Draw at Arizona - Sonora, the Animas, San Luis, Playas, Hachita, Mimbres and Mesilla basins in New Mexico-Chihuahua, and the Hueco basin at El Paso-Juarez, along with those along the Rio Grande in Texas-Chihuahua, Coahuila and Tamaulipas.

Designation of these aquifer systems is based on surface geology, topography, and data available from existing wells. In many of them, the valley alluvial material is thin, the groundwater yields are poor, the quality is poor, and little is known about the geometry and other physical variables which control the movement and quantity of water available. Based on this information, it is very doubtful that

Institutional Framework for Water Resources Management

Within the United States, a number of federal laws and court decisions establish the federal government as steward of the nations' water resources. Federal managers include the United States Section of the IBWC, the Army Corps of Engineers, and the Bureau of Reclamation. Their areas of responsibility, in addition to the operation and maintenance of water control and utilization structures include those legal requirements related to reserved water rights on federal and Indian reservations, the Clean Water Act, the National Environmental Policy Act and the Endangered Species Act. In Mexico, water supply management is centralized and directed primarily by Mexico's National Water Commission.

Water rights issuances arrangements also have been established by the four U.S. border states. For the most part, these arrangements apply only to surface waters. The states' groundwater management legal regimes vary significantly from state to state.

Research on border-region water resources, like day-to-day management, is handled by a number of organizations at different levels and within different sectors. The U.S. Geological Survey conducts research and collects, maps, manages, and interprets data. State agencies are also responsible for collecting data about water resources within their borders. Environmental and other non-profit and academic group organizations conduct research on a number of issues, ranging from policy questions to scientific issues, such as that of ecosystem needs in certain segments of the international streams. In a related area, the Colorado River basin states, in partnership with the natural resource protection and operating agencies, have established programs to identify and protect habitat for multiple fish and wildlife species.

Government-to-government data collection and cooperative government-to-government partnerships are facilitated through international institutions and international joint cooperation arrangements.

these groundwater supplies are sustainable.

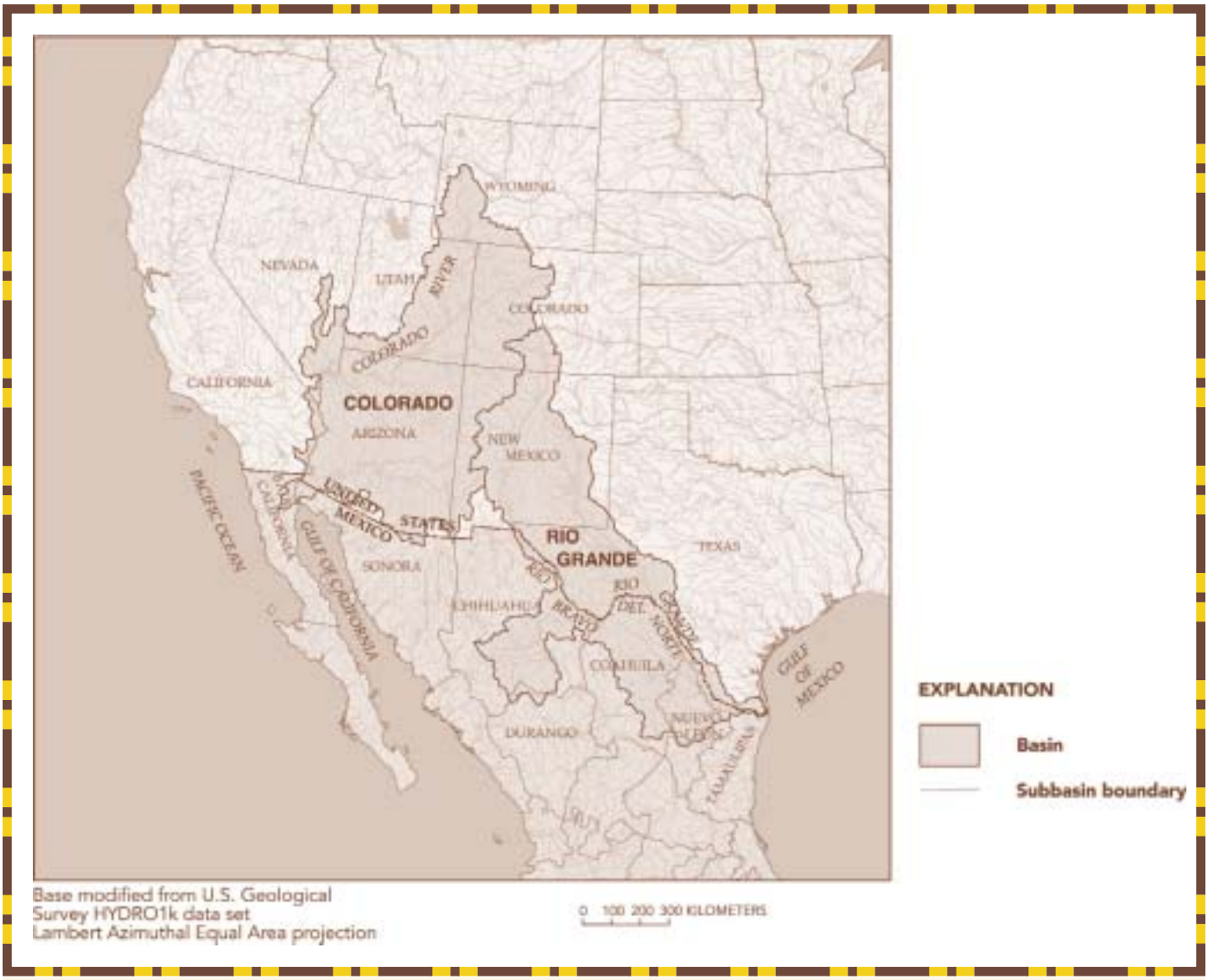
Groundwater pumping takes place for agricultural irrigation in the Colorado River portion in Mexico. Withdrawals for drinking and irrigation water occur in both the Arizona-Sonora basins, in which their intermittent streams also supply water to the diverse flora and fauna in this Sonoran dry desert ecology. The Santa Cruz River Valley provides groundwater for drinking water supply for Nogales, Arizona, and Nogales, Sonora, for approximately 150,000 inhabitants, which is expected to more than double in 2020. The fast-growing community of Sierra Vista, Arizona and the mining community of Cananea, Sonora, withdraw waters from the San Pedro River basin. The cities of El Paso and Juarez with a combined two million inhabitants depend in large part on the non-replenishable waters of the Hueco groundwater basin. Growth areas to their west can be expected to withdraw groundwaters from the nearby Mesilla basin in New Mexico-Chihuahua. The Juarez agricultural valley draws waters from this basin for irrigation.

Some information on groundwater basins in each country has been shared by the two governments. But there is a critical need to intensify this effort and develop binational efforts to gain insight about the availability, ability to sustain, and quality of groundwater; the interaction of groundwater and surface-water; the importance of groundwater as the source of water for streams to maintain critical habitats; and the susceptibility of groundwater to contamination.

Unlike border-region surface waters, the United States and Mexico have not allocated the groundwaters that lie in basins straddling the international boundary. The need for a comprehensive multi-year joint federal and state effort, to systematically assess priority trans-boundary aquifers within the US-Mexico Border region, must remain a top border priority. Such a program will, over time, provide a scientific foundation for further cooperation to address many of the pressing natural resource challenges in the region. As data and understanding of this resource evolves, there will also be an evolution toward binational data sharing, cooperation, and fostering a long-term perspective on the management of the border groundwater resources.

POLICY ISSUES

- **Reduced flows:** Colorado River flows arriving at the border region "end points" can be expected to be further reduced as uses increase in the U.S. upper basin. The reduced flow, in turn, will affect efforts to protect the riparian and estuarine ecology of the Colorado River delta in both the United States and Mexico. The United States and Mexico (IBWC Minute No. 306) established a



International watersheds of the Rio Grande and Colorado River, United States and Mexico.

framework of cooperation to develop joint studies of this problem. Under the framework, the effect of flows on the riparian and estuarine ecology would be examined to define habitat needs of fish and marine and wildlife species of concern to each country.

The Rio Grande can also be expected to continue to experience reduced flows. Downstream of Fort Quitman in Texas, for instance, the Rio Grande's natural processes have been altered extensively for nearly a century. In this 200-mile reach, a build-up of sediment from periodic storms in the river's tributaries and the absence of any significant mainstream flow to move this sediment downstream, has obliterated the river channel. A mono-culture of exotic salt cedar now lines the riparian zone for hundreds of miles, competing for water with species with greater wildlife habitat value. Water that does make it past Fort Quitman is mainly storm runoff and municipal and agriculture return flows.

This "Forgotten River" segment is rejuvenated by the flows from the Conchos River from Mexico at Presidio/Ojinaga. However, the Conchos River flows and other tributaries from Mexico, including those from which waters are allocated to the United States by treaty, have been declining steadily for the past decade, a period of drought in this part of the basin. Storage of United States and Mexican waters at the international Amistad and Falcon Dams has declined to record low levels, prompting emergency U.S.-Mexico water loan arrangements.

Discussions are under way to improve information exchange that paves the way for planning for river management during drought periods. For the first time in recent memory, the mouth of the Rio Grande became blocked with sediment during February 2001, completely eliminating any outflow of Rio Grande waters to the Gulf of Mexico. The sandbar was not cleared until July 2001,

when the IBWC was forced to dredge a 20-foot channel through the 400-foot sandbar. Within two days, natural processes had opened the channel to more than 100 feet in width, but this situation could recur as drought and low-flow conditions persist.

As in the case for the Colorado River, reduced flows and escalating demand for water threaten the Rio Grande ecosystem. The declining flows from the Mexican tributaries have raised questions concerning the delivery by Mexico of waters allocated to the United States from those streams. Mexico continues to accumulate a water debt, a matter that was raised to the level of the Presidents in February 2001, and which resulted in IBWC agreements for plans for Mexico to cover the water debts. Mexico's difficulty in making full deliveries under those plans prompted Presidents Bush and Fox to have a frank discussion on September 5, 2001 about water resources and the importance of Mexico living up to its treaty obligations. Resolution of this issue remains high on the United States' agenda. Both presidents also recognized that greater cooperation can lead to more effective watershed management and improved infrastructure. They discussed formation of a joint advisory council.

- **Pollution:** Pollution problems, exacerbated by low flows, plague the Colorado River and the Rio Grande. Dumps, mine wastes, municipal and industrial effluent, irrigation return flows, and other non-point runoff all contribute varying contaminants that have been linked to human and ecosystem health problems. In addition, especially in the Colorado River basin, the presence of salinity, or total dissolved solids, is a major concern. These water quality problems affect the rivers' suitability for human consumption, irrigation and wildlife.

- **Pathogens:** It is no longer possible to assume that even treated public water supplies are completely free of all pathogens. The susceptibility of a source water supply to contamination by water-borne pathogens is dependent on many factors, including physiography of the contributing watershed, land use practices, wastewater treatment methods, and pathogen life-cycles. This concern of global scope is especially relevant to residents in the border region due to reports of inadequate sewage treatment and limited public water-supply infrastructures.

Concerns about water-borne pathogens are highlighted by the U.S. Environmental Protection Agency's (EPA) Surface Water Treatment Rule, which requires suppliers that use rivers or reservoirs as a water supply to adequately filter the water for pathogens. Similar concerns led to EPA's Information Collection Rule implemented in 1996, which requires monitoring and data reporting from large public water systems (greater than 100,000 population served) on water-borne agents.

- **Non-Native Aquatic Vegetation:** Introduced aquatic vegetation - hydrilla and water hyacinth - are clogging the main stem of the Rio Grande and hindering the operation of irrigation and drinking water supply diversion structures in the Lower Rio Grande Valley. These weeds flourish in low-flow conditions and have been difficult to eradicate with mechanical means. They have proliferated, in part, because of elevated concentrations of nutrients from run-off, coupled with low flows from overuse. To enable water to be delivered to downstream users on both sides of the border, water is being released from the Falcon Reservoir to "push" the clogged Rio Grande water through the vegetation. Other species - grass carp and weevils - are being introduced for bio-control of the weeds, but the long-term ecosystem effects of these species are unclear. In some reaches of the Colorado River, different aquatic vegetation has appeared. The U.S. water resource agencies have teamed their efforts to prevent its spread to the border. Mexico's water resource agencies have participated in control and prevention efforts for both river systems.

- **Groundwater Depletion:** Overuse of groundwater supplies in the Santa Cruz River and San Pedro River basins is a major concern because of the rapid growth rates in the urban areas in those basins. Increased groundwater withdrawals from the Tucson basin in Arizona have resulted in increased well pumping costs, reduced groundwater quality, decreased well capacities, and land subsidence. As groundwater withdrawals exceed natural recharge, increasing volumes of surface water from the Santa Cruz and San Pedro Rivers are drawn into the aquifer, affecting river flow, and in turn, the riparian habitat in those streams.

In Texas and Chihuahua, the El Paso/Juarez joint planning efforts are based on viewing the Hueco groundwater basin as a finite water supply. Conservation measures are being undertaken and alternative sources are being explored, including desalination and increased use of treated river water.

PROJECTS AND PARTNERSHIPS

Some border region programs to protect water resources have existed for a decade or more. For instance, the Colorado River Basin Salinity Control Forum was organized in 1974 by the seven Colorado River basin states. Another example is the Western Water Policy Review Advisory Commission, initially established by former President George Bush in 1992. The Commission outlined western

Binational sampling of the Colorado River at the Northern International Boundary is helping both nations learn more about the quality of their shared water resources.
Photo credit: Roy Schroeder, USGS.

water conflicts and recommendations to resolve them, many of which are applicable to the border region.

Individual states also have initiatives in place. For instance, in 1997, the Texas legislature mandated creation of Regional Water Planning Groups. Regional water plans have been completed and are in the process of being incorporated in the state water plan. Although some environmental groups and rural interests have concerns about some of the provisions in these plans, the planning process generally is viewed as a ground-breaking effort to shape the state's water policies for the next 50 years.

Over the past several years, promising new partnerships have been created to work specifically on Rio Grande issues: 1) In 1999, the Rio Grande Citizens' Forum was established by the U.S. section of the IBWC to obtain input on its activities on the Rio Grande between Percha Dam, New Mexico and Fort Quitman, Texas.
2) Currently, the IBWC is working with the U.S. Department of the Interior, Mexico's Secretariat of Ecology and Natural Resources, and non-government organizations to develop a strategy for the "forgotten reach" of the Rio Grande between Fort Quitman and the Amistad Reservoir. The strategy includes components such as a habitat assessment and possible salt cedar control projects. It grew out of a June 14, 2000 binational symposium about that stretch of the river. 3) A Binational Assessment of Natural Resources along the Rio Grande/Rio Bravo continues to be carried out by the U.S. Department of the Interior and Mexican scientists from Ministry of the Environment and Nature Resources (SEMARNAT). The goal is to complete a reconnaissance of the "Upper" and "Lower Canyon" reaches of the Rio Grande, that border protected areas in Mexico, Big Bend National Park in Texas, and most of the U.S. designated "Wild and Scenic" reach of the Rio Grande. 4) The Binational Rio Grande Rio Bravo Ecosystem Working Group, formed in response to the Joint Declaration signed in June 2000 by the two environment ministry heads, then-Secretaries Babbitt and Carabias, meets to formulate strategies for restoring ecosystem values for a segment of the Rio Grande. 5) Border-region, non-governmental organizations issued a Binational Declaration in May 2001 regarding management of the Rio Conchos and lower Rio Bravo/Rio Grande. The agreement calls for both governments to improve water use efficiency, explore joint funding of conservation measures and develop short- and long-term joint drought management plans.

OTHER INITIATIVES

In Texas, a coalition of public interest groups is implementing an initiative called the "Living Waters Project." The goal is to urge water planners to provide mechanisms to protect rural water needs, bay and estuary freshwater requirements and preservation of in-stream flows. Also in Texas, the towns of El Paso and Fort Bliss are exploring construction of a joint desalination plant. The plant would allow for the treatment of saline water prior to distribution and remove demand on other fresh water sources.

Texas and New Mexico together have established the Texas/New Mexico Water Commission to bring together El Paso and southern New Mexico to work on common water concerns and future water delivery mechanisms. In addition, the new Mexico Lower Rio Grande Water Users Organization was set up to foster cooperative water planning among a number of souther New Mexico water suppliers, including those for rural communities.

To involve rural communities all along the U.S.-Mexico border region, the United States Department of Agriculture (USDA) is continuing to sponsor the establishment and operation of Rural Conservation & Development Border-Region Councils. Among their other activities, the councils may recommend water conservation projects for funding.

Several pairs of sister cities are carrying out joint planning efforts around the issue of longer-term water supply for their communities. Notable examples are those between El Paso, Texas-Ciudad Juarez, Chihuahua and San Diego, California and Tijuana, Baja California. In addition, the Tohono O'odham Nation is planning for long-term protection and management of its groundwater supply.

NEXT STEPS

MOVE FORWARD ON CONSERVING ECOSYSTEMS.

Support water use plans that provide sufficient water flows for the conservation and restoration of streams, rivers, lakes and wetlands as riparian ecosystems. Implement the 2000 Joint Declaration between the Department of Interior and SEMARNAT as a step forward in this process.

STRENGTHEN BINATIONAL GROUNDWATER RESEARCH.

Develop a binational program to assess the availability and quality of groundwater in the border region. Such a program could provide a scientific foundation for further cooperation to address many of the pressing natural resource and environmental challenges in the border region. These challenges include providing for safe, sustainable supplies of water and assessing the susceptibility of aquifers to contamination.

FOSTER STRATEGIC PLANNING.

Develop a joint drought management and sustainable water management plan for the region.

INVEST IN INFRASTRUCTURE.

Support continued investment in water supply, wastewater treatment, resource recovery, and recycling and solid waste disposal infrastructure to provide a save water supply, protect public health, and improve water quality.

ADDRESS NON-POINT SOURCES OF WATER POLLUTION.

Develop and implement proven land and water management strategies to treat non-point sources of water pollution along the border. Use practices that account for natural features such as geology and soils, as well as anthropogenic features, that is, tile drains and irrigation.

LOOK GLOBALLY FOR MODELS OF SUCCESS.

Research potential blueprints for water management practices from other water deficient areas of the world for possible application to the US-Mexico Border region.

LINK WATER ISSUES WITH HEALTH ISSUES.

Implement a process to integrate public health and water resources issues. The process should include a binational program for systematic monitoring of surface and groundwater for water-borne pathogens, viruses, selected trace elements, and pesticides. Bottom sediments and fish tissues should be included in the process and examined for selected trace elements, organochlorine pesticides, and other compounds.

In summary, we must strengthen the good work already under way. The U.S. and Mexico can no longer afford to separately plan and execute water use and allocation for shared border watersheds. With some border cities predicted to run short in as little as five years, there is an urgent need to undertake water management planning as soon as possible. Strong binational cooperation based on mutual respect is a critical element to forging new joint management plans in the border region. A high priority must be placed on ecosystem functioning, on maintaining the value of rural communities in both the U.S. and Mexico, and on stakeholder involvement in water management planning. Border region-wide efforts such as continuing to move toward a watershed approach, including development of a border-region water plan, are essential ingredients of any longer-term solution. The Good Neighbor Environmental Board called for such an approach in its last report, the Fourth Report to the President and Congress. It applauds progress since that time and reiterates its call.

Fifth Report of the Good Neighbor Environmental Board

to the President and Congress of the United States

RECOMMENDATIONS IN CONTEXT

AIR QUALITY

RECOMMENDATIONS

- **Power Plants:** Establish formalized binational coordination and cooperative planning among U.S. and Mexican energy and environmental agencies to minimize adverse air quality impacts from power plants in the border region, while addressing binational energy needs.

- **Alternative Energy:** Promote energy conservation and development of alternative sources of energy in order to minimize impacts to air quality.

- **Infrastructure Fund:** Provide federal financing to remedy air quality health problems exacerbated by inadequate transportation infrastructure in the region. Such funding should be allocated to a binational entity capable of taking remedial action at the project level.

The May 2001 report by the White House's National Energy Policy Development Group states that "fossil fuel-fired power plants, other industrial sources, and vehicles remain significant sources of air pollution." This is especially true in the border region, where air quality is a border-wide problem.

In contrast to communities in other parts of the United States, financially strapped border communities have had to deal with decades of rapid growth and additional infrastructure demands brought by the North American Free Trade Agreement (NAFTA). Many border-area residents are exposed to health-threatening levels of air pollutants such as carbon monoxide, sulfur dioxide, ozone and particulate matter. These pollutants originate from a number of sources: power plants, industrial facilities, vehicles, truck back-ups at border crossing points, burning garbage, residential heating and cooking, burning landfills, brick-making kilns, and unpaved roads. They also may occur as a by-product of agricultural practices such as pesticide application, agricultural burns to clear land, and tilling activities. Wind-blown sand, dust and soil are a problem particularly in coastal areas, where brush removal, agriculture and drought have created vast tracks of exposed surface area.

POWER PLANTS

Decisions about power plants, one of the border region's "stationary" sources of air emissions, have moved to center stage in recent months, due to an anticipated spike in energy demand. In Mexico, the Federal Electrical Commission (FEC) is planning to increase its generation capacity by an additional 15,000 megawatts (MW) between now and 2007, with electricity demands in northern Mexico alone projected to increase by 10 - 14 percent. ("The Geography of Energy at the U.S.-Mexican Border", Pasquetti, M. 2001.) Statistics from the Commission for Environmental Cooperation (CEC) support the case. Its initiative called "*Environmental Challenges and Opportunities of the Evolving Continental Electricity Market,*" reports increased electricity sector expansion in Mexico, with 65 percent of the expansion to occur in the country's northern border states.

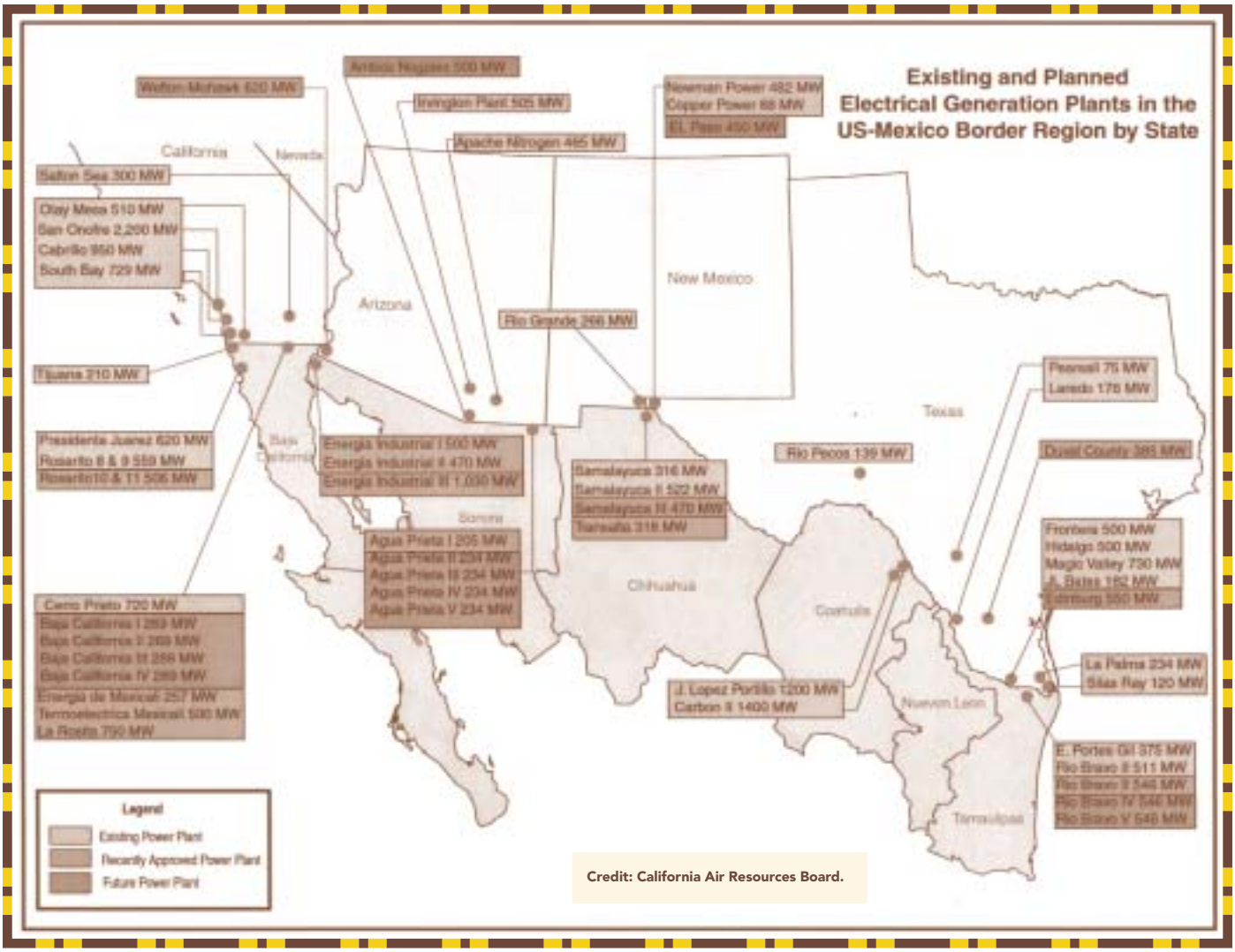
The U.S. border region already is contending with a supply/demand imbalance, and the situation is not expected to change anytime soon. In the case of California, for example, the state has experienced serious electricity supply problems since deregulation, including rapidly escalating prices for electricity, forced outages and extended periods of blackout warnings. In response, since

This Samalayuca combined-cycle power plant near Ciudad Juarez, Chihuahua, and El Paso, Texas, uses air cooled condensers.
Photo credit: GEA Power Cooling Systems.

TABLE 1. BORDER REGION POWER PLANTS 200 MW AND LARGER

STATE	FUTURE PROPOSED	EXISTING	RECENTLY APPROVED
California	3	2	—
Baja California	4	4	4
Arizona	2	1	1
Sonora	0	3	5
New Mexico	1	—	—
Texas	5	—	3
Chihuahua	2	1	1
Coahuila	2	1	—
Tamaulipas	2	1	2
Total U.S.	11	3	4
Total Mexico	10	10	12
Total Border Region	**21**	**13**	**16**

Source: California Air Resources Board



Credit: California Air Resources Board.

1999, the California Energy Commission has licensed 30 new natural gas-fired power plants, totaling almost 12,000 MW of new generation that will come on-line by 2004. In addition, in 2001 the California legislature authorized $800 million in additional spending on energy efficiency and energy conservation programs. These new investments, coupled with existing programs and ongoing efforts, reduced electricity consumption for the first nine months of 2001 by almost eight percent below the same period in 2000.

A comprehensive look at both sides of the border collectively shows that13 electricity generating projects have been recently permitted throughout the border region, and 16 more are being planned to meet the region's anticipated needs (see Table 1). These projects will increase the region's generating capacity by more than 5,000 MW by 2003, and will almost double the current capacity from 14,000 to 26,000 MW by 2009.

Energy policy choices that result in employing power plants to meet increased demand along the border should be carefully examined in terms of the effect upon regional air quality. Power plants are significant sources of several air pollutants including oxides of nitrogen (NO_x), carbon monoxide (CO) and particulate matter less than 10 microns (PM_{10}). Air pollution levels in most of the binational air basins, such as San Diego-Tijuana, Imperial County-Mexicali and El Paso-Ciudad Juarez, already exceed health-based air quality standards established by the U.S. and Mexico. (See Table 2).

Though other measures have been proposed as part of the solution mix to escalating energy demands, they have not, to date, received the attention they merit. Wind and solar power should be chief among the alternatives examined. A greater focus on energy conservation also deserves more serious thought.

Evidence suggests that some business and private consumers

may prefer a "green" choice of electricity: The Commission for Environmental Cooperation (CEC) funded a Gallup Mexico survey in June/July 2001 of 100 top Mexican businesses. The results were startling: 94 percent of the business executives in these companies indicated that they are aware of environmental impacts of electricity used, and are prepared to purchase more electricity from renewable sources to run their businesses. When asked if they would pay more for "green" electricity, over half of those companies said they would pay a premium, on average about 10 percent above current electricity prices. The survey included: iron, steel, cement, paper, mining, automotive and chemical companies with total annual sales of U.S. $110 billion, employing approximately 600,000 people.

TABLE 2. AIR QUALITY IN THE BORDER REGION

CITY	OZONE	CO	PM10	SO2
San Diego, CA	■	●	●	●
Tijuana, BC	■	■	■	■
Imperial Valley, CA	■	●	■	●
Mexicali, BC	■	■	■	■
Douglas, AZ	●	●	■	■
Agua Prieta, Son	●	●	■	■
Nogales, AZ	●	●	■	●
Nogales, SON	N/A	N/A	■	N/A
San Luis Rio Colorado, SON	●	●	■	N/A
Yuma, AZ	●	●	■	●
Anthony, NM	●	●	■	●
Sunland Park, NM	■	●	●	●
El Paso, TX	■	■	■	●
Cd. Juarez	■	■	■	●

● - Meets air quality standard

■ - Does not meet air quality standard

N/A - Data not available

Note: Each city is rated according to either U.S. or Mexican standards, depending upon their country.

Sources: For U.S. cities, U.S. Environmental Protection Agency "Green Book;" for Mexican cities, Border XXI Air Workgroup information.

Who Regulates the Energy Sector?

Governmental organizations oversee energy supply and demand in both the United States and Mexico. In many ways, however, that is where the similarity ends. In Mexico, all energy matters are regulated at the federal level. The Ministry of Energy (SE) is in charge of defining Mexico's energy policy. The Comision Federal de Electricid (CFE) is responsible for power production in Mexico; and the power plants being built by foreign companies in Mexico contract with CFE. Several other governmental organizations make up Mexico's energy structure, including the Energy Regulatory Commission (CRE), responsible for issuing permits. Mexico's environmental regulatory agency, SEMARNAT (Ministry of the Environment and Natural Resources), has a dual role in dealing with power plants: it requires an environmental impact study for every proposed project, and it establishes standards called Official Mexican Norms (NOMs) for enforcement. The current framework offers little opportunity in Mexico for local community participation in licensing and permitting.

By contrast, in the United States, energy is regulated at both the federal and state level. State governments play a key role in ensuring that all power plants in the United States obtain permits from the pertinent state environmental regulatory agency, which also enforces its stipulations. Many federal environmental laws delegate some or all permitting activities to the states. Major federal projects require that Environmental Assessments and/or Environmental Impact Statements be completed under the National Environmental Policy Act (NEPA), in addition to any other state or federal permits or other state or local environmental review. For example, in California, all major projects, including federal projects, undergo environmental review or permitting, specifically determined to be equivalent under the California Environmental Quality Act (CEQA).

POLICY ISSUES FOR POWER PLANTS

BINATIONAL PLANNING:

Historically, planning for new power plant facilities along the border has not been coordinated binationally. Though dialogue is beginning to take place in this arena, different institutional frameworks and lines of responsibility, inherently make any joint capacity-planning process difficult. Case in point: in San Luis, Rio Colorado, immediately south of the border from San Luis, Arizona, a power plant has been proposed to generate electricity to meet demands for a new proposed industrial center for maquiladoras. This facility also proposes to send some of its energy to help meet California's demands. In this instance, Arizona could be subjected to emissions from Mexico. U.S. federal and state officials are said to have learned of this proposed facility as a result of an article in a local newspaper.

SHARED AIR SHEDS, DIFFERENT EMISSIONS STANDARDS:

No trans-boundary agreements exist to provide clear guidance on how to manage and/or avoid potential negative impacts of individual power plants' emissions on shared, trans-boundary "air sheds". Furthermore, there are no binational agreements to provide even notification or information about proposed power plants. Some U.S. border states have such agreements in place, but may not have access to all the relevant information to which the federal government has access.

Clearly, there is no NEPA requirement for any new power plants constructed in Mexico. Mexican emissions requirements tend to be less stringent than in the United States and, in some cases (as for carbon monoxide), nonexistent, with potential ramifications for neighboring U.S. communities all too evident. Case in point: a U.S.-owned facility is being built in Mexicali, Baja California. Part of its energy supply will be sent to California. Potentially, faced with energy shortages, U.S.-owned companies can escape more stringent emissions controls by building in Mexico, and still supply power to U.S. communities. At the same time it is difficult to obtain information about the intentions of energy developers to sell into the United States. Currently, communities involved are forced to rely on the good will of the developers to share this information.

U.S. border communities face a unique and sometimes formidable challenge when it comes to complying with EPA's National Ambient Air Quality (NAAQ) Standards. Many of them are declared to be in non-attainment, but they do not always have complete control over resolving the problem. The case of Carbon I and II, coal-fired power plants in Coahuila, provides perhaps the most

well- known example of the ramifications of shared air sheds. These power plants are believed to be contributing significantly to visibility problems in Texas at Big Bend National Park. The U.S. is not without blame, however. Studies also suggest that Texas industries could be contributing to the problem. Negotiations are ongoing, but the process thus far has been limited to study, rather than any real action to clean up possible sources of contamination. Recently, El Paso and Ciudad Juarez have decided to address their local air quality problem through a cooperative, binational approach; and this effort could serve as an important model for similar approaches throughout the border region.

Recently, California officials have decided to take an innovative approach to the problem: The Imperial County Air Pollution Control District of California has issued a set of recommendations to the Mexican government that would apply to new power plants scheduled to be constructed in Mexicali. According to Imperial County Officials, these proposed plants would generate CO and NOx emissions high enough to contribute significantly to already high levels of ozone in Imperial County. Imminently, county officials are attempting to arrange meetings with Mexican Comision Federal de Electricidad (CFE) officials and Intergen Aztec Energy, the projects' sponsors, to express their concerns and seek tighter emission limits through the Presidential Permit process. This case, as it unfolds, may provide an interesting example of local action to address air quality problems, and should also provide some lessons to state and federal government officials.

TRANS-BOUNDARY TRANSMISSION LINES:

Presently, electricity supply connectors between the two countries serve only local areas within the Texas-Chihuahua corridor and the California-Baja California corridor. This scenario, however, is changing. Major international transmission lines have been proposed by several entities to deliver power northward, and in a rare occasion, southward. The companies in the United States proposing the projects have begun NEPA processes to apply for a Presidential permit to build these high-voltage transmission lines. During this time in which demand for new supplies may place pressures on energy sector officials, it is particularly important that strategic, longer-term environmental sustainability goals continue to guide policy decisions.

Some border citizens have expressed another concern: the effects that transmission lines will have on scenic by-ways and conservation areas. For instance, the Public Service Company of New Mexico reportedly plans to install power lines across ecologically sensitive areas in southeastern Arizona and into Mexico. Area residents have expressed opposition to the project.

U.S. COORDINATION ACROSS SECTORS:

Even within the United States, domestic energy and environmental agencies have not always worked as partners on responsibilities involving power plants. Separate federal legislation and regulations have created a "stove-pipe" approach to carrying out energy responsibilities and environmental responsibilities, once again making close coordination inherently difficult. Some states, such as California, have a comprehensive licensing process for new power plants that incorporates all state and local permitting. However, during electricity market deregulation, California abandoned its long-standing resource planning process and eliminated any requirements to demonstrate need before obtaining a license to construct a power plant.

U.S. NATIONAL ENERGY POLICY:

The Bush Administration's National Energy Plan, released in May 2001, carries specific recommendations that will also affect electricity sector development along the border. The report recommends that: trilateral energy integration be developed through the North American Energy Working Group; areas of cooperation between the three countries be identified; and reforms of oil, natural gas, and electricity trans-boundary Presidential Permitting be reviewed and proposed, as necessary, in order to facilitate cross-border trade. This third recommendation deserves more attention in light of existing air quality challenges in the border region. It may not be wise to expedite permitting processes if they could result in an increase in air quality impacts, especially in areas with non-attainment status.

EFFECTS ON COMMUNITIES:

Air quality impacts can be severe for communities close to power plant emissions. Although natural gas is regarded as a cleaner-burning fuel for power plants, gas is not always available, particularly in Mexico, unless it comes from the U.S. Other fuels such as diesel or "combustoleo", a diesel-like fuel oil produced by Mexico's national petroleum company, PEMEX, can have more severe air quality impacts such as those observed at the Rosarito plant south of San Diego (which is being converted to run on natural gas). Coal-fired utilities, such as the Carbon 1 and 2 plants in Coahuila, Mexico, south of Big Bend National Park in Texas, emit sulfur dioxide particles, which are particularly harmful to the respiratory system, are a precursor to acid rain, and are major contributor to the formation of soot. (Clean Air Trust, 2001.)

TRANSPORTATION

Power plants are not the only topic under discussion when it comes to protecting border-region air quality. Mobile sources of air pollution, and the road transportation policies that underpin these activities, also are a major piece of the puzzle. Two areas, the condition of border-region roads, and the state of commercial freight traffic, are ripe for re-examination, as concerned decision makers at all levels look for new ways to encourage sustainable development that includes clean air. Border crossings, particularly in the urbanized areas of the border, carry millions of passenger cars, trucks and buses. These vehicle crossings contribute to smog, particulate and toxic air pollution.

Regions of the United States far beyond the border are benefitting from these road transportation activities. Thus, it is only appropriate that policies underlying them receive national attention; and that these policies safeguard human health and the environment as well as the economy. Moreover, border communities that may be suffering a disproportionate level of negative impacts from these activities deserve capacity-building support to address the problems already present and mitigate these impacts in the future.

UNPAVED ROADS

Hundreds of unincorporated towns ("colonias") along the U.S. Mexico border are home to about 1.5 million people (Housing Assistance Council, 1998). A significant percentage (in many cases, 50%) of the roads in these communities are unpaved. Unpaved roads on both sides of the border contribute air-borne dust and soils known as particulate matter (PM-10, or particulate matter of 10 micrometers or less) to the environment. Particulate matter of this sort can cause breathing difficulties, damage lungs and irritate the nose and throat.

Many border-area residents may be exposed to health-threatening levels of air pollutants that originate from a number of scenarios including vehicle congestion at border crossing points.
Photo credit: Victor Valenzuela, TNRCC.

At present, neither U.S. nor Mexican federal environmental or transportation programs are designed to address the issue. Federal environmental programs have focused their infra-structural aid on larger issues such as potable water, wastewater and solid waste. In addition, federal transportation programs have volume requirements that make these roads ineligible for assistance. State transportation programs also tend to give these roads very low funding priority. Thus, unpaved roads become the responsibility of local areas - areas that do not have the resources needed to address the pollution from the international traffic moving through their communities.

COMMERCIAL FREIGHT

Policies that affect commercial freight transportation also are being reviewed. This "mobile" source of air pollutants serves as a key connecting link for the maquiladora industry and other commercial activities on both sides of the border. As NAFTA-induced trade increases, so do the number of trucks crossing the border. Some studies project as much as an additional 85% increase in truck traffic over the next 30 years. Assuring the efficient movement of commercial vehicles by road is especially important to the border economy because roughly 85 percent of the goods (by value) travel by this mode.

Despite the economic benefits, this increase in traffic contributes significantly to the degradation of ambient air quality, particularly at heavily trafficked border crossing points where inspection lines force diesel-burning trucks to idle for many hours. Diesel fuel combustion is a major source of finer, toxic particulate matter. Beginning in 1994, EPA required modifications to diesel vehicles in the U.S. that greatly reduced their PM emissions. There is concern that many trucks traveling across the border from Mexico are older, heavier models still emitting high levels of fine particulate matter and nitrogen oxide.

While many border crossing points are faced with traffic congestion, the scenario at several of these locations stands out. The crossing between Laredo, Texas, and its sister city across the border, Nuevo Laredo, is the busiest port of entry along the U.S.-Mexico border, with 2.2 million trucks crossing north and south in 1999. ("North American Trade and Transportation Corridors: Environmental Impacts and Mitigation Strategies", Prepared for NACEC by ICF Consulting, 2001.) Further to the northwest, the Nogales port of entry along the Arizona-Sonora border is a focal point for the importation of winter produce from Mexico, with as many as 20,000 truck crossings per week, and over 250,000 incom-

ing trucks in 2000, according to the U.S. Department of Transportation. And at the western edge of the border, the San Ysidro, California/Tijuana crossing saw almost 700,000 incoming trucks during 2000.

Federal Support for Roads

Federal transportation programs account for only about a third of public spending on roads. The remaining two-thirds have come from state and local spending. The U.S. federal government has focused resources of the Highway Trust Fund on the major road systems responsible for the carriage of commerce. In the U.S., of the roughly 4 million miles of roads, the majority of federal aid goes to the 150,000 miles of interstate and National Highway System roads.

Although the U.S. Department of Transportation (DOT) has only a tangential role in addressing air quality problems, it does provide some limited aid for air quality issues through its Congestion Mitigation and Air Quality Improvement Program (CMAQ). This program's purpose is to fund projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide (CO), and PM-10, which reduce transportation-related emissions. Unlike other programs that have a specific highway or transit focus, CMAQ only requires that the activity produce a transportation benefit. Local transportation agencies, called metropolitan planning organizations (which are not environmental organizations) make decisions on how to spend CMAQ funds. In the view of some observers, spending has focused more on congestion mitigation than air quality.

The CMAQ Program is part of the multi-year surface transportation legislation approved by Congress. The current authorization is known as Transportation Equity Act for the 21st Century (TEA-21).

POLICY ISSUES FOR TRANSPORTATION

UNPAVED ROADS:

Given that current federal and state government funding largely is directed elsewhere, border communities, including tribal communities, end up being responsible for their own unpaved roads, both environmentally and from a transportation standpoint. In a number of border communities and on tribal lands, lack of resources prevents roads from being paved, even though local officials are aware of the health issues. For example, a comprehensive air quality study in Ambos Nogales demonstrated that unpaved roads in Nogales, Mexico are the primary contributor for Nogales, Arizona's non-attainment status for PM10. Although nearly all of Nogales, Arizona's roads are paved, approximately 90 percent of Nogales, Sonora's are not. Given that Nogales, Sonora has a population of nearly 300,000, it is impossible for Nogales, Arizona's 20,000 residents to have clean air without completion of air quality infrastructure projects in their neighboring Mexican sister city. The estimated consequence of this dilemma is an increase of respiratory diseases and premature deaths in both cities.

This trend is repeated in Douglas-Agua Prieta, where 85 percent of Agua Prieta's roads are unpaved. In El Paso-Juarez, 55 percent of Juarez roads are unpaved. A recent study completed by the Instituto Municipal de Investigación y Planeación (IMIP) estimated that it would require an investment of $295 million to pave 42 miles of unpaved roadway in Juarez. By comparison, Juarez's municipal budget for 2001 is $150 million, of which only one-third is spent on public works projects. Sunland Park, New Mexico; Anthony, New Mexico; and approximately 10 additional Dona Ana County, New Mexico, colonias share the El Paso/Juarez air shed. As a result, they experience many of the same non-attainment issues and face the same concern over unpaved roads.

The problem of unpaved roads is not confined to Mexican communities. El Paso county officials estimate that between 450 and 550 miles of unpaved streets exist in El Paso colonias alone. Clearly, significant funding assistance is necessary to solve this infrastructure problem in border communities along both sides of the border.

COMMERCIAL FREIGHT:

According to the U.S. Department of Transportation's Bureau of Transportation Statistics, trade between the U.S. and Mexico moving by truck, rail, pipeline and other surface means grew from $88 trillion to $210 trillion between 1994 and 2000. Significantly, the bulk of these goods moved by truck ($171 billion). Many U.S.

experts predict freight volumes overall within the U.S. will double between now and 2020.

Another important development is the planned expansion within the next year of the border to commercial truck traffic. Exactly when and how Mexican-owned trucking companies will be allowed to operate beyond the 20-mile commercial zones is now the subject of Congressional debate as well as three separate rule makings before U.S. DOT's Federal Motor Carrier Safety Administration. It would be wise for policy makers to monitor these developments for potential effects on air quality.

PROJECTS AND PARTNERSHIPS

SISTER CITY PROJECTS

Sister cities located in all four U.S. border states are continuing to build strong partnerships around a number of environmental problems they have in common, including air quality issues. The current dialogue builds on earlier binational scientific air quality studies carried out in these areas and financed under the Border XXI Program, including studies of air quality problems, such as emissions inventory development and air quality monitoring and modeling.

For example, the States of Arizona and Sonora began discussions in January 2001 to address the Nogales, Arizona's non-attainment status for PM10 air pollution and commensurate health impacts. Through this consular-led Border Liaison Mechanism (BLM), which is a type of forum that has been established along the length of the U.S.-Mexico border by the U.S. Department of State and Mexico's Secretariat of Foreign Affairs (Secretaría de Relaciones Exteriores), the two countries seek to incorporate local input into bilateral discussions to resolve a wide variety of trans-boundary issues. The Arizona-Sonora BLM is the first to address binational air quality issues in a comprehensive manner for a sister city pair, including automotive vehicular emissions, traffic congestion at the port of entry, outdoor burning by residents, and the locally critical issue of stabilizing unpaved roads. Operational leadership comes from the Arizona Department of Environmental Quality and the State of Sonora's Secretariat of Urban Infrastructure and Ecology (SIUE), along with support from Arizona's Department of Transportation. Federal funds are needed for air quality-focused infrastructure projects such as road paving, especially in Mexico, and expansion of the commercial trucks' port of entry.

Arizona officials also are involved in acting upon the results of a preliminary air quality study of the Douglas-Agua Prieta area, which has revealed alarming concentrations of particulate PM10 air pollution in this sister city pair. Although a public health risk assessment will be undertaken by the state of Arizona as the final phase of this multi-year study, the local communities have already begun an aggressive effort to seek funds for road paving projects. The two cities and the Arizona Department of Environmental Quality are cooperating.

Officials in Texas and New Mexico are working with neighbors across the border through an initiative called the Joint Advisory Committee for Improvement of Air Quality in the El Paso-Juarez-Doña Ana County, NM Air Basin (JAC). This project, which was set up to improve air quality in the El Paso del Norte air basin, has been showcased as a model of locally-based, binational cooperation in the border region. Established in 1996, through an appendix to the La Paz agreement, this 20-member group is comprised of representatives from U.S. and Mexican federal, state and local governments, academia, business and industry, public health and non-governmental organizations. Recent accomplishments of the JAC and its partners include establishment of a Designated Commuter Lane at the Stanton Street Bridge to facilitate border crossing, thereby mitigating bridge congestion, distribution of oxygenated fuels in Juárez during the winter carbon monoxide season, and implementation of a binational ozone action day program to provide the community with real-time ozone air quality information.

In California, the Binational Air Quality Alliance (BAQA) has been set up to serve the San Diego, California/Tijuana-Rosarito, Baja California air basin. The Alliance serves as an advisor to a range of agencies and is developing recommendations on strategies to prevent and control air pollution within the air basin.

OTHER PARTNERSHIPS

In the western U.S.-Mexico border region, the Border Power Plants Working Group is working with industry officials to promote sustainable power plants from both an air quality and water use perspective. The group is comprised of concerned citizens, environmental engineers, elected officials, and non-governmental organizations. One goal is to establish a binational agreement that places sustainable electricity infrastructure development in an official context.

The U.S. Department of Transportation, through its Federal Highway Administration, has participated for the past five years in a binational effort known as the U.S./Mexico Transportation Planning and Programming Joint Working Committee. The Committee met on June 14, 2001 in Chihuahua City and adopted a new two-year joint work plan whose main focus is coordinating transportation infrastructure investments, more efficient border crossing, and trans-

portation corridor planning.

On a state level, California officials are addressing air quality concerns through the state's California Air Resources Board (CARB). The Board conducts a Heavy Duty Vehicle Inspection Program in which teams inspect trucks and buses for excessive smoke. The inspections take place at border crossings, primarily Otay Mesa and Calexico. Trucks and buses with excessive smoke emissions are subject to penalties starting at $300. In budget year 2000/01, CARB conducted 886 inspections, resulting in 73 citations to vehicles testing with excess emissions.

Another project under way in California began in March 2001: the California Environmental Protection Agency and the California Bureau of Automotive Repair signed an agreement with the City of Tijuana, Baja California to donate equipment, and help design and implement a pilot vehicle inspection and maintenance program for Tijuana's municipal fleet.

NEXT STEPS

POWER PLANTS

ENSURE AIR QUALITY SAFEGUARDS BEFORE POWER PLANT EXPANSION.

Proximity to the U.S.-Mexico border can create important benefits, such as the opportunity to sell or acquire electricity across the international border. The international border can also be beneficial in providing cleaner burning fuels to proposed facilities. Some proposed Mexican power plants, such as the Agua Prieta plant under construction south of Douglas, Arizona, would receive natural gas piped through Arizona. While such opportunities are evident, environmental concerns have not been adequately considered in the early planning stages of these facilities.

PROVIDE INCENTIVES FOR ALTERNATIVE SOURCES AND ENERGY CONSERVATION.

Far fewer power plants might be necessary if greater emphasis were placed on conservation and on developing renewable energy sources, resulting in fewer impacts to air quality. For instance, the North American Commission for Environmental Cooperation (CEC) published a report in November 2001 on possible carbon reductions in Mexico. It found that strategies involving fuel switching, the use of energy efficient technologies, and changes in forestry practices could result in more than five million metric tons of carbon savings in these sectors; and could also generate profits for companies able to translate them into carbon credits on the emerging international carbon market. In the United States, while the National Energy Plan discusses the potential for environmentally-friendly energy development, there is less emphasis on demand-side management than on supply-side response.

ESTABLISH A BINATIONAL COORDINATING COUNCIL.

At a minimum, membership should include at least four agencies at the federal level: the two environmental protection agencies (EPA and SEMARNAT) and the two energy departments (DOE and SE) and the relevant state agencies, as well as non-governmental organizations working on air quality issues. The council would address the rapidly escalating issues associated with new power plants in the border region. Such a coordination council is vital to the ultimate success of the president's energy policy.

HARMONIZE REQUIREMENTS.

The absence of harmonized environmental requirements for new power plants is at the core of the trans-boundary concerns about power plant emissions. A model for consideration could be the handling of smelters in the border region under Annex IV of the 1983 La Paz Agreement. A similar accord could be explored for power plants operating on both sides of the United States-Mexico border region.

DEVELOP NOTIFICATION SYSTEM.

Although developing a harmonized set of emissions requirements may be extremely challenging considering the absence of harmonized requirements in the U.S., and sovereignty concerns in Mexico, at the very least, trans-boundary notification of plans to design facilities in the border region should occur. Article 10(7) of the North American Agreement on Environmental Cooperation addresses this issue, but has yet to be implemented. The article requires the CEC council to "consider and develop recommendations with respect to" assessment, notification and mitigation of projects with a trans-boundary environmental impact.

VOICE SUPPORT FOR PROPOSED MEXICAN LEGISLATION TO IMPOSE MORE STRINGENT REPORTING REQUIREMENTS ON INDUSTRIES.

Currently, power plants and other industries are required to report annual emissions to SEMARNAT, Mexico's environmental department, but this information is generally not publicly accessible. The proposed legislation may also make more of this information available to the public.

TRANSPORTATION

CREATE A BORDER AIR QUALITY FUND.

Perhaps most critically, the creation of a Border Air Quality (BAQ) fund is necessary to finance infrastructure improvements on both sides of the border to help bring U.S. border communities into attainment with applicable U.S. standards. Sufficient scientific information exists to demonstrate links between public health and air quality, and between air quality and the absence of transportation-related infrastructure in the border region. One example already exists for such a fund. EPA's Border Environment Infrastructure Fund (BEIF), is dedicated to water and wastewater infrastructure needs on the border.

On the broadest level, the border region virtually serves as a major land funnel for the movement of raw materials, finished products and produce throughout North America, with detrimental effects on border communities' air quality. Regardless of the number of hurdles involved, the U.S. government must recognize that these international air quality issues are likely to worsen over time unless action is taken to create a binational source of funding for air quality infrastructure deficiencies. Improvements to roads, ports of entry, mass transportation systems and vehicle emissions testing systems are necessary to improve public health in the region.

CONSIDER AIR QUALITY-RELATED APPROPRIATIONS THROUGH AGENCIES BESIDES THE U.S. EPA.

Since air quality-focused infrastructure solutions are often transportation projects, the U.S. Congress and the President may ultimately wish to look for additional sources of support. Such agencies may include the U.S. Department of Transportation (US DOT) or the U.S. Department of Commerce. Such appropriations would need to be strictly earmarked and monitored to ensure they are used on transportation projects that directly improve air quality. U.S. DOT and U.S. EPA must actively oversee these programs to ensure that these appropriations are spent on local transportation projects that have a direct, rather than incidental, air quality benefit.

Existing and Planned Electrical Generation Plants in the US-Mexico Border Region (> 200 MW) by State

Facility Name or Planned Expansion	Location	Facility Status	Owner	Capacity (MW)	Technology and Fuels	Emissions Controls
ARIZONA						
Apache Nitrogen	St. David	In Operation	Apache Nitrogen Products	465	Combined Cycle and Dry Bottom Turbo-Fired / Coal & Gas	Boilers 2 & 3:SO2-Wet Lime NOx-Overfire Air
Irvington Plant	Tucson	In Operation	Tucson Electric Power Co.	505	Tangentially Fired and Dry Bottom Wall-Fired / Natural Gas and Oil	Boiler 4:Nox-Low Nox Burner
Wellton-Mohawk Generating Facility	25 miles east of Yuma	Permit Application 6/2001 Operational Summer 2003	York Research Corp.	620	Combined Cycle/ Natural Gas and SEECOTTM Solar Technology	Selective Catalytic Reduction (SCR) and CO Catalyst
Ambos Nogales Generation Station	Nogales		Maestros Group L.L.C.	500 For whole-sale to Mexico. Not connected to US grid	Combined Cycle/ Natural Gas	
BAJA CALIFORNIA						
Presidente Juárez	Rosarito	In Operation	CFE	620	Thermoelectric/ Natural Gas & Industrial Oil	
Tijuana	Tijuana	In Operation	CFE	210	Turbogas / Diesel	
Cerro Prieto	Mexicali	In Operation	CFE	720	Geothermal	
Rosarito 8 & 9	Tijuana	2001	ABB/Nisholwai	559	Combined Cycle / Natural Gas and Diesel	
Rosarito 10 & 11	Tijuana	2003	Intergen Aztec Energy	506	Combined Cycle / Natural Gas and Diesel	

Facility Name or Planned Expansion	Location	Facility Status	Owner	Capacity (MW)	Technology and Fuels	Emissions Controls
BAJA CALIFORNIA (continued)						
Baja California I	Rosarito	2005		269	Combined Cycle / Natural Gas and Diesel	
Baja California II	Rosarito	2007		269	Combined Cycle / Natural Gas and Diesel	
Baja California III	Rosarito	2008		269	Combined Cycle / Natural Gas and Diesel	
Baja California IV	Rosarito	2009		269	Combined Cycle / Natural Gas and Diesel	
Energía de Mexicali	Mexicali	2003 (?)	Intergen Aztec Energy	257	Combined Cycle / Natural Gas	
Termoeléctrica de Mexicali S. de R.L.	Mexicali	2003	Sempra	500All for export to US	Combined Cycle / Natural Gas	Low Nox Burners, SCR
La Rosita	Mexicali	2003	Intergen Aztec Energy	1000-750 for export to US	Combined Cycle / Natural Gas & Diesel	Low Nox Burners
CALIFORNIA						
Otay Mesa	Otay Mesa	Approved by CEC 4/18/2001 Expected to Start in 2003	PG&E Generating	510	Combined Cycle / Natural Gas	
Salton Sea Unit #6	Imperial County	Appl. for Certif. Expected 6/2001	California Energy	300	Geothermal	
San Onofre Nuclear Power Plant	San Onofre (51 miles NW of San Diego)	In Operation	Southern California Edison	2,200	Nuclear Reactor core fueled by Uranium dioxide pellets	
Cabrillo Power Plant	Carlsbad	In Operation	Cabrillo Co.	950MW	Natural Gas & Fuel Oil	
South Bay	San Diego	In Operation	Dynergy/NRG	693	Thermoelectric	

Facility Name or Planned Expansion	Location	Facility Status	Owner	Capacity (MW)	Technology and Fuels	Emissions Controls
CHIHUAHUA						
Samalayuca	Cd. Juárez	In Operation		316	Thermoelectric/ Natural Gas & Industrial Oil	
Samalayuca II	Cd. Juárez	In Operation		522	Combined Cycle / Natural Gas & Diesel	
Samalayuca III	Cd. Juárez	2007		470	Combined Cycle / Natural Gas & Diesel	
	Ciudad Juárez	2003	Transalta de Chih., S.A. de C.V.	318	Combined Cycle / Natural Gas	
COAHUILA DE ZARAGOZA						
J. López Portillo	Río Escondido	In Operation		1200	Coal / Coal	None
Carbón II	Nava	In Operation		1400	Coal / Coal	None
NEW MEXICO						
Rio Grande	Sunland Park	In operation since late 1950's	El Paso Electric	266	Dry Bottom Wall-Fired / Gas (Primary) Diesel and Oil (Secondary)	Uncontrolled
	La Mesa	April 2002	Public Service of NM	135 MW expand-ed to 225 MW	Natural gas	
	Lordsburg	Early 2003	Tri-State Generation &Trans-mission Assn.	160 MW	Natural gas	
	Deming		Duke Energy	600 MW	Natural gas	

Facility Name or Planned Expansion	Location	Facility Status	Owner	Capacity (MW)	Technology and Fuels	Emissions Controls
NUEVO LEON						
—	—	—	—	—	—	—
SONORA						
Agua Prieta I	Agua Prieta	2003	Unión Fenosa	205	Combined Cycle / Natural Gas (from US)	
Agua Prieta II	Agua Prieta	2005	Unión Fenosa	234	Combined Cycle / Natural Gas (from US)	
Agua Prieta III	Agua Prieta	2006	Unión Fenosa	234	Combined Cycle / Natural Gas (from US)	
Agua Prieta IV	Agua Prieta	2007	Unión Fenosa	234	Combined Cycle / Natural Gas (from US)	
Agua Prieta V	Agua Prieta	2008	Unión Fenosa	234	Combined Cycle / Natural Gas (from US)	
Energía Industrial I	San Luis Río Colorado	Sep. 2002	Energía Industrial Río Colorado	500	Natural Gas	
Energía Industrial II	San Luis Río Colorado	May 2003	Energía Industrial Río Colorado	470	Natural Gas	
Energía Industrial III	San Luis Río Colorado	Sep. 2004	Energía Industrial Río Colorado	1,030	Natural Gas	

Facility Name or Planned Expansion	Location	Facility Status	Owner	Capacity (MW)	Technology and Fuels	Emissions Controls
TAMAULIPAS						
E. Portes Gil	Río Bravo			375	Thermoelectric/ Natural Gas & Industrial Oil	
Río Bravo II	Río Bravo	Electricité de France		511	Combined Cycle / Natural Gas & Diesel	
Río Bravo III	Río Bravo			546	Combined Cycle / Natural Gas & Diesel	
Río Bravo IV	Río Bravo			546	Combined Cycle / Natural Gas & Diesel	
Río Bravo V	Río Bravo			546	Thermoelectric/ Natural Gas & Diesel	
TEXAS						
Newman Power Station	El Paso	El Paso Electric Co.	Gas (Primary);Oil and Diesel (Back-up)	500	Dry Bottom Wall-Fired (295 MW); Combined Cycle (205 MW)	NOx Controls for 205 MW; in process of installing controls on 295 MW under SB7
Hidalgo Energy Center	Mission, Hidalgo	In Operation	CSW Energy	344		
Magic Valley Generation St.	Edinburg, Hidalgo	In Operation	Calpine	500		
	Edinburg, Hidalgo	Date in service 6/01	Calpine	730		
	El Paso, El Paso	Recently Announced	ANP	450		
	Duval	Recently Announced	CCNG, Inc.	385		
	Edinburg, Hidalgo	Recently Announced	ANP	550		

SOURCES OF INFORMATION:

Arizona:

1) Wellton-Mohawk Geerating Facility Project Information
2) Maestros Group LLC webpage: http://maestrosgroup.com
3) EPA Acid Rain Emissions Data for Power Plants: http://www.epa.gov/acidrain/emission/az/
4) Newspaper article: Rush to meet energy need likely won't help S. Arizona. Arizona Daily Star. April 15, 2001, pp. 1 and 8.
5) Arizona Department of Environmental Quality's Proposed and pernitted PSD/NSR Permits 1998-2000.
6) Arizona Department of Environmental Quality's State Map Showing Electric Generating Facilities

Baja California:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/
2) Information Sheet for Mexicali Power Plant Projects
3) Information Provided by Eduardo Arriola Valdez, Comisión Federal de Electricidad

California:

1) EPA Acid Rain Emissions Data for Power Plants: http://www.epa.gov/acidrain/emission/ca/
2) California Energy Commission webpage: http://www.energy.ca.gov/
3) San Diego Tribune - Various News Articles

Chihuahua:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/
2) Information Provided by Eduardo Arriola Valdez, Comisión Federal de Electricidad

Coahuila de Zaragoza:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/
2) Information Provided by Eduardo Arriola Valdez, Comisión Federal de Electricidad

Nuevo León:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/
2) Information Provided by Eduardo Arriola Valdez, Comisión Federal de Electricidad

New Mexico:

1) EPA Acid Rain Emissions Data for Power Plants: http://www.epa.gov/acidrain/emission/nm/
2) El Paso Times
3) Tri-State Generation webpage
4) Albuquerque Journal

Sonora:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/
2) Information Provided by Eduardo Arriola Valdez, Comisión Federal de Electricidad

Tamaulipas:

1) Comisión Reguladora de Energía (CRE) website: http://www.cre.gob.mx/

Texas:

1) EPA Acid Rain Emissions Data for Power Plants: http://www.epa.gov/acidrain/emission/tx/; El Paso Electric
2) TNRCC Title V and NSR Lists
3) Texas PUC Generation Facilities List

FOOTNOTES:

1) The California Energy Commission's webpage splits power plants between those that are >300MW in capacity and those that <300MW in capacity. Most of our research for California was centered on the former group. For that reason, there may be a few power plants not included in this table that have a capacity between 200MW and 300MW.

2) For some facilities, one or more cells were left blank due to lack of information regarding those parameters.

Fifth Report of the Good Neighbor Environmental Board
to the President and Congress of the United States

RECOMMENDATIONS IN CONTEXT

HAZARDOUS MATERIALS

RECOMMENDATIONS

- **Capacity-Building:** Direct financial, technological and human resources to assist local communities, including tribal communities, to prepare for and respond to hazardous materials incidents.

- **Training:** Increase awareness and training in the areas of hazardous waste identification, storage, and export for final disposition.

- **Resources:** Increase available emergency response equipment and personnel.

As in other parts of the United States and Mexico, a range of hazardous materials can be found in the border region. Some of these hazardous materials are present in fixed facilities such as maquiladora plants, while others pass through the region as rail and truck shipments. The difference between the border region and the rest of the United States, in the eyes of concerned border-region residents, is the relative level of potential risk their communities face, and the comparative lack of resources they have available to handle an actual incident, such as an accidental release or spill.

A sizeable portion of the approximately 300 million hazardous materials shipments that take place in the United States each year occur in the border region. The main hazardous materials moving through the region, according to recent the U.S. Environmental Protection Agency (EPA) commodity flow studies, are petroleum and petroleum products and natural gas. In San Diego County alone, more than 24,000 trans-border shipments of hazardous materials take place annually, for the 16 types of commodities classified as hazardous materials commodities, according to a 2001 EPA study.

One component of these hazardous materials being shipped is managed as hazardous waste by the U.S. Department of Transportation (DOT). EPA studies have shown that along the length of the border from San Diego to Brownsville, anywhere from one to 11 percent of hazardous material shipments is hazardous waste. Manufacturing facilities and maquiladoras are the principle generators of hazardous waste, generating mainly waste flammable liquids

and solvents. Hazardous waste transported through the region is primarily solid waste, destined for recycling.

Cross-border movement of hazardous waste involves hundreds of industrial facilities. The amount of hazardous waste exported from Mexico to the United States increased from 5,500 tons in 1991 to more than 12,000 tons in 1999, a growth of more than 118 percent, according to EPA's Haztraks database. Conversely, it is reported that hazardous waste exports from the United States to Mexico have increased from 158,543 tons in 1995 to 254,537 tons in 1999, an increase of approximately 60 percent. [Source: Texas Center for Policy Studies, 2000 Report on Generation of Trans-boundary Hazardous Wastes, Table 36.] Technically, under U.S. federal rules, hazardous waste for recycling is not considered hazardous waste.

Hazardous Materials Management Responsibilities

Responsibility for managing hazardous materials along the border is shared by different governmental agencies at varying levels. On the broadest level, the Mexican Ministry of Environment and Natural Resources (SEMARNAT) and EPA have primary oversight for managing hazardous wastes.

Other U.S. federal agencies play a part as well. Both the Mexican and U.S. DOT have responsibilities for moving hazardous material. DOT is responsible for regulating the packaging and placarding of hazardous materials shipments moving within the United States, as well as defining the training standards for those who handle those goods for and during actual transport. In addition, the U.S. Departments of State and Treasury have a role, with the State Department responsible for acknowledging consent of international shipments of hazardous waste, and the Customs Service of the Treasury Department assuring compliance with U.S. trade regulations.

U.S. state agencies have delegated authority from EPA for managing trans-boundary movement of hazardous wastes, for example, when that waste is being transported through or sent to their state for final disposal. State agencies such as the Texas Department of Public Safety have delegated authority to verify transporters are complying with DOT rules.

Tracking wastes in the United States is also a multi-agency effort. Hazardous waste and other commodities are tracked as imports and exports through two federal agencies, U.S. Customs Service (imports) and U.S. Bureau of Census (exports). Imports of hazardous wastes are tracked by an EPA database known as Haztraks, and by domestically required submissions of hazardous waste manifests. Exports are not always monitored, and at times, voluntary reporting of shipments via Shippers Export Declarations (SEDs) must be relied upon. Tracking information also is provided by DOT's Bureau of Transportation Statistics (BTS), which maintains data bases on traffic flow of people and goods across national borders.

For day-to-day management of hazardous waste, it tends to be an issue of infrastructure and bilateral coordination, as well as regulation, compliance assistance and enforcement. In Mexico, the Hazardous Waste Regulation establishes "cradle-to-grave" documentation and disposal requirements, just as the Resource Conservation and Recovery Act (RCRA) does in the United States.

EMERGENCY RESPONSE

With the increase in cross-border movement of hazardous waste comes the potential for increased risk of accidents. Unfortunately, many border communities within the ten border states lack the resources they need to adequately handle either mobile or stationary types of hazardous materials emergencies. Competing budget demands on modest municipal coffers leave little reserve to fund activities such as training or planning, or to purchase and maintain an adequate level of response equipment. For instance, the city of Reynosa, the sister city of McAllen, Texas, has only one fire station to serve its population of 420,000, according to a local newspaper article that appeared in October 2001. Many communities like Reynosa, on both sides of the border, remain at risk. Aggressive steps are required to improve their ability to plan for and respond to hazardous materials emergencies.

In the meantime, dedicated citizens, in what are called "sister cities," neighboring cities across the border from each other, are working together with the resources they do have, with some laudable outcomes as the result. For example, as of November 9, 2001, eight out of fourteen pairs of sister cities had put what are called "contingency plans" into place. These Sister City Contingency Plans spell out how the sister cities will jointly prepare for and respond to emergencies involving fire, chemicals, or hazardous materials that may affect that portion of the border area and its residents. Pairs of cities with contingency plans include the following: 1) Brownsville, Texas, and Matamoros, Tamaulipas; 2) Eagle Pass, Texas, and Piedras Negras, Coahuila; 3) Laredo, Texas, and Nuevo Laredo, Tamaulipas; 4) McAllen, Texas, and Reynosa, Tamaulipas; 5) Nogales, Arizona, and Nogales, Sonora; 6) San Luis, Arizona, and San Luis, Sonora; and 7) Del Rio, Texas, and Ciudad Acunña, Coahuila; and 8) Douglas, Arizona, and Aqua Prieta, Sonora.

Sister cities throughout the border region increasingly are forming partnerships around emergency preparedness, as this training exercise in Brownsville/Matamoros illustrates.
Photo credit: Armando Santiago, EPA.

Legislative Framework for Emergency Response

Support for developing Sister City Contingency Plans stems from the La Paz Agreement. Annex II of the La Paz Agreement established what is called the U.S./Mexico Joint Contingency Plan. This binational overarching plan lays a foundation for cooperative efforts across the region to work together on prevention, preparedness, mitigation and response of hazardous substance releases in the border area. It is being implemented by a group called the Joint Response Team, a group that also serves as the Contingency Planning and Emergency Response Workgroup under the Border XXI program.

The Joint Response Team is co-chaired by EPA's Chemical Emergency Preparedness and Prevention Office and SEMARNAT's PROFEPA, the Mexican federal enforcement agency. Membership includes federal, state, and local officials responsible for border contingency planning and emergency response. One of the team's responsibilities is to set up a framework for developing individual sister city contingency plans for each of the 14 pairs of adjacent cities on each side of the border. It also assists sister cities with incorporating counter-terrorism aspects into their contingency plans. EPA's Region 6 and 9 regional offices are the U.S. implementing bodies of the team.

EPA also has emergency response responsibilities under another piece of legislation. Its Chemical Emergency Preparedness and Prevention Office oversees implementation of federal legislation passed in 1986, called the Emergency Planning and Community Right-to-Know Act (EPCRA). EPCRA provides for funds to states and Indian tribes for planning and training for emergency response to hazardous materials accidents and incidents. It mandates that each state establish a State Emergency Response Commission.

These State Emergency Response Commissions, in turn, are required to set up Local Emergency Planning Commissions (LEPCs). Up to 75 percent of the states' EPCRA grant funds are passed on to local governments to enable them to do their part. LEPC membership must include local elected officials and staff with competence in health and emergency response, as well as members from industry, media and citizen's groups. The LEPCs work on sister city plans, in partnership with their Mexican neighbors, as well as develop a plan for their own community. Yet a different community group is responsible for the step-by-step operational procedures that are put into action in their community in case of emergency. These "first-response" organizations are encouraged to work in coordination with their local LEPCs.

FEDERAL AGENCY INVOLVEMENT

Once sister city contingency plans are developed, EPA works with the communities to test them out. Emergency response exercises, which are based on the plans, are carried out to help ensure that the plans remain viable and useful. EPA's regional offices in San Francisco and Dallas take a lead role in this work. Simulation exercises have been held thus far in six of the eight sister cities with contingency plans. Hundreds of dedicated border region residents took part in these exercises, which included industry sponsorship.

EPA also assists sister cities with other emergency response activities: developing commodity flow studies; training on emergency response software, developing simulation exercises, first responder/hazardous materials technician training, inventories of resources, and other activities. EPA maintains a website where its semi-annual report, commodity flow studies, and other documents about the border region can be accessed. State and local authorities in both the U.S. and Mexico have been actively involved as partners in all of these border efforts.

The U.S. Department of Transportation (DOT) also is part of the emergency preparedness support network. DOT's Research and Special Programs Administration (RSPA) and its sister agencies in Canada and Mexico jointly issue a North American Emergency Response Guidebook. Published in English, French, and Spanish, the 2000 version of the guidebook alerts first responders to potential dangers arising from the threat of fire, explosion or health hazards, and recommends initial emergency actions for the most commonly transported hazardous materials. RSPA also manages the Hazardous Materials Emergency Preparedness (HMEP) grant program, which provides hazardous materials planning and training assistance to emergency responders and LEPCs. HMEP distributes fees col-

lected from shippers and carriers of hazardous materials to emergency planners and responders. Nearly $12.8 million in grant funds were available for use in 2001, with $1.9 million earmarked for border states.

The Research and Special Programs Administration also encourages initiatives in which industry partners with local emergency response personnel. Other DOT programs include the following: emergency response training of first responders through team workshops; a first responder videotape training program; Chemnet, a mutual aid network that provides direct on-site assistance for chemical emergencies to shippers and for-hire contractors; and funds for state and local emergency preparedness demonstration projects.

PROJECTS AND PARTNERSHIPS

SISTER CITIES

Sister City Contingency Plans provide one of the best examples of binational cooperation at the municipal level. Developing these plans involves a broad range of stakeholders, and so agreement on the conditions sometimes takes time. Together, each multi-stakeholder group identifies which chemical risks are especially applicable to its own pair of sister cities, and how to respond in case of an incident. Simultaneously they work to build a collaborative network that becomes instrumental in reducing the risk.

Close examination of one sister city contingency plan illustrates the partnership process. In October 2001, the mayors of Del Rio, Texas, and Ciudad Acuña, Coahuila signed what the two cities call their Binational Hazardous Material Mutual Aid Agreement. The Agreement calls for the sister cities to determine areas of common concern, assess their collective resources, and conduct a bi-national exercise every two years. Under the terms, the city providing the assistance will supervise its own personnel and equipment. The group receiving the aid will have authorized people to provide general directions related to the work. The party responsible for the spill, receiving the aid, will be responsible for the necessary material and other items needed to respond adequately. According to the agreement, if the incident is beyond the capabilities of both cities, they can request that the state of Texas or the Mexican State of Coahuila initiate a joint team. If more help is needed, EPA and, in Mexico, the National Civil Protection System, can be contacted for additional aid.

Sister city planning has spawned the creation of another type of binational partnership: Binational Emergency Planning Committees (BEPCs). BEPCs are similar in concept to Local Emergency Planning Committees (LEPCs). Of note is the BEPC for the sister city pair of Nogales, Arizona, and Nogales, Sonora, which is co-chaired by Mexican and U.S. Consuls. This local plan has been successfully tested four times since March 1999. With EPA's support, and Arizona state agencies and local officials, plans were developed, exercise design classes were held, and full-scale binational simulation exercises were executed. Additionally, binational first responder/hazardous material technician level courses were completed that are certified by Arizona and the International Fire Service Accreditation Congress.

OTHER TOOLS, INITIATIVES

Additional emergency response resources have been developed for nationwide use that are being employed in the border region:

OPERATION RESPOND® - Operation Respond® is a not-for-profit organization providing emergency responders with fast, accurate information in emergency situations. Designed for use at hazardous materials and passenger train incidents, Operation Respond® Emergency Information System (OREISÔ) software provides the necessary information to assure that the first responder to an accident is not its first victim. The program connects operators to the databases of railroad and motor carriers, allowing emergency responders to quickly and accurately identify the presence of any hazardous materials. It also provides detailed information about specific chemicals and how they should be handled in different situations.

CHEMTREC® - The Chemical Transportation Emergency Center is a public service hotline for fire fighters, law enforcement, and other emergency responders. It also helps shippers of hazardous materials to comply with the U.S. Department of Transportation Hazardous Materials regulations. Callers have immediate access to technical information, including what sort of initial action is required to mitigate an incident. Information is available 24-hours a day, including interpreters for non-English speakers. The toll-free number is (800) 424-9300, with no charge to an emergency responder. CHEMTREC maintains a large database and offers access to product specialists, chemists, and other experts. It also assists physicians and other medical specialists with treatment information.

CAMEO® - Computer Aided Management of Emergency Operations was developed by the National Oceanic and Atmospheric Administration (NOAA) and EPA to assist front-line chemical emergency planners and responders in accessing, storing and evaluating information critical to developing emergency management plans and managing emergency incidents. The CAMEO suite of programs (CAMEO, ALOHA and MARPLOT) integrates a chemical database and a method to manage locally collected data (CAMEO), an air dispersion model (ALOHA) and mapping capability (MARPLOT). All modules work interactively to share and display critical information in a timely fashion. The CAMEO system is available for Macintosh and Windows formats and a Spanish language version was added to support U.S.-Mexico border region emergency planning and response.

RETURNING HAZARDOUS WASTE

Properly disposing of hazardous waste is essential if border communities are to remain safe, and if industry is to continue remaining in compliance with U.S. and Mexican law. Though maquiladora managers continue to work toward responsible management practices, the requirements for waste characterization and final disposition are many and complicated. For example, full compliance entails meeting U.S. federal requirements, Mexican federal requirements, U.S. state requirements, and, if they exist, Mexican state requirements. The result can be confusion over how to fully comply with the law. Given these circumstances, it is not entirely surprising that some maquiladoras improperly dispose of their waste in Mexico, transport waste from California/Baja to Yuma/San Luis communities to avoid more stringent hazardous waste requirements in California, or illegally dispose of it in the United States.

For the most part, maquiladoras are required to return any waste generated from U.S. materials back to the United States. The generator loses title of the waste to the transporter when it is returned to the U.S., which also generates confusion. However, an exception for returning wastes to the U.S. does exist. If the waste has been "nationalized," it does not have to be shipped back over the border. Maquiladoras have the option of petitioning the Mexican federal government for permission to nationalize their waste. If approved, the final disposition of that waste can take place in Mexico. Because the requirements are many and complicated, nationalization of the waste in Mexico can be very attractive. In reality, however, very few companies nationalize their waste and leave it in Mexico. In order to nationalize the waste, all of the raw product has to be imported definitely into Mexico, which can be cost-prohibitive. Nevertheless, concern remains that because the waste disposal infrastructure in Mexico is not comparable to what exists in the United States, more waste remaining in Mexico could also mean greater potential risk.

Better communication and education is needed to enable the maquiladora industry to responsibly meet its obligations under binational hazardous waste laws. The U.S. federal government can play a key role in this capacity-building process by providing the human, financial, and technological resources needed to work with the private sector to appropriately return or dispose of their waste.

In some cases, hazardous materials along the border may end up in storage for significant amounts of time.
Photo credit: Esteban Herrera, EPA

Current Law on Returning Waste

In Mexico, Mexican hazardous waste generated from Mexican materials may be stored indefinitely on-site under current law. However, if the original materials were U.S. in origin, as is usually the case for maquiladoras, the hazardous waste must be shipped back to the United States. Rules for the mandatory return of hazardous waste generated in Mexican maquiladoras (in-bond factories) are found in Mexico's federal environmental, tax, customs and maquiladora statutes. Under these statutes, all hazardous waste arising from materials imported in-bond (temporarily and without payment of taxes or duties) into Mexico are considered to retain the nationality of the original material. The exception to this rule is that if the waste is nationalized, it is considered Mexican even if materials for assembly originated in the United States. Therefore, it doesn't have to be returned to the United States. In addition, though not specifically referencing maquiladoras, the same mandatory return requirement also is triggered by Annex III of the La Paz Agreement, which requires the U.S. to accept wastes that are generated from raw materials in Mexico, under Art. 153 of their General Law.

U.S. hazardous waste generators, by contrast, cannot store their waste indefinitely on-site. They must ship their wastes off-site for disposal within 90, 180, or 270 days of generation, depending on the type of generator and the volume of waste generated. If they opt to ship their waste to Mexico, Article 153 of Mexico's General Law states that it can only be shipped for recycling.

POLICY ISSUES ON RETURNING WASTE

INDEFINITE STORAGE:

Significant growth rates, coupled with inadequate hazardous waste infrastructure, represents a real threat to the border environment and public health. Current Mexican law allows generators of hazardous waste to store waste indefinitely on-site, meaning that facilities in Mexico may be *de facto* hazardous waste storage facilities, with increased risk to public health and safety.

RECYCLING PRACTICES:

Mexico's National Institute of Ecology (Instituto Nacional de Ecologia (INE) has instituted a policy that encourages the development of recycling capacity which, in turn, has led to an increase in Mexican hazardous waste recycling facilities. While recycling is good and should be promoted, there are environmental implications associated with it, especially if not conducted in an appropriate manner. As an example, many of the Superfund sites in the U.S. were the result of inappropriate recycling activities.

CURRENT TAX AND DUTY REQUIREMENTS:

The legislative logic in the pre-NAFTA (North American Free Trade Agreement) period of the U.S.-Mexico relationship considered all hazardous waste arising from materials imported in-bond to be temporary; and therefore, not subject to payment of taxes or duties. This system should be revisited, as the majority of hazardous materials used in the maquiladora industry are not subject to duties.

CROSS-AGENCY COORDINATION:

The interaction among agencies located in the border region with regulatory responsibilities is of prime importance. This is especially so at the ports of entry where hazardous wastes are imported into, or exported out of, the United States. Regarding compliance assurance with U.S. hazardous waste regulations, the coordination between the U.S. Customs Service, EPA and the environmental agencies in the border states is crucial. It is at these very entry points where hazardous waste manifests are delivered, and deficiencies could be addressed before cargo continues into the U.S. interior.

DIFFERING RESTRICTIONS:

Compliance assurance can be challenging because operating procedures regarding hazardous waste imports and exports vary from

port to port. For example, one port of entry may have restricted days and hours in which hazardous materials, including hazardous wastes, are allowed to enter or exit the U.S., but a port of entry in a neighboring state may not have any restrictions at all. This opens the possibility of hazardous waste transporters traveling greater distances to take advantage of more favorable policies at particular ports. The optimal scenario regarding hazardous waste cargo is an efficient and timely transport route from origin to its final destination.

TRACKING SYSTEMS:

In practice, neither U.S. nor Mexican tracking systems wholly monitor the entire cycle, nor are they harmonized to easily capture specific shipment information as they flow across borders. Better coordination, as a direct result of Border XXI activities, has improved the regulatory understanding of trans-boundary hazardous waste issues. However, the regulatory uncertainty arising from the pre-to post-NAFTA treatment of hazardous waste creates a vacuum in which the possibility of improper handling and disposal of such waste is enhanced.

STORAGE

The border region's capability to safely store hazardous materials remains a priority and a concern. Under the current system, Mexican long-haul trucks drive to warehouses just inside their border where they unload their cargo. There, short-distance transportation trucks, called drayage trucks, carry the goods across the border to U.S. warehouses where they are stored until U.S. trucks pick them up to take them to their final destination. Often the same warehouses are used to store U.S. goods going to Mexico.

Statistics on exactly how many storage facilities exist along the border are insufficient. What is known is that a portion of the goods being stored are hazardous materials, including hazardous waste. Also known is that in some cases, these materials may end up being stored for significant amounts of time. Moreover, although the Department of Transportation (DOT) and Occupational Safety and Health Administration (OSHA) in the United States have strict rules about storage and training, warehouses may not always be designed for the storage of such materials, nor are the employees always adequately trained to handle them.

Time limits for storage in Mexico are not as restrictive as those in the United States, thus potentially enabling long-term storage at generating facilities such as maquiladoras. In theory, complete inventories of hazardous waste could be abandoned at facilities. There is no Mexican counterpart to Superfund, and any such abandonment must meet the criterion of "imminent and substantial threat to human health or the environment" (implied, but not specified, U.S. human health and environment) for the U.S. Superfund remediation tools to help.

LAREDO, TEXAS: A CASE IN POINT

The impact of the NAFTA transportation boom and its ramifications for the border-region's storage facility infrastructure can perhaps be seen most clearly in Laredo, Texas. In 2001, Laredo was estimated to have some 2,000 warehouses, adding an average of 800,000-1,000,000 square feet of warehouse space per month.

Because of concerns for the storage and handling of hazardous materials in the growing number of warehouses around the city, Laredo took action to address this issue enacting Ordinance 97-332 in 1997. Under this ordinance, Laredo permits and inspects warehouses for compliance with hazardous materials guidelines which originate from all relevant state and federal agencies. An inspection of 216 warehouses in 2000 conducted by a joint local/state/federal task force found 32 violations in hazardous materials storage and management, illustrating the need for additional compliance assistance. Groups such as the Laredo Development Foundation are working to improve the situation. The Foundation provides quarterly training to employees of warehouses to comply with hazardous materials management requirements. In addition, Laredo has changed its zoning ordinance so that new warehouses can only be built in areas of the city along main traffic arteries. The community is to be commended for its efforts to take innovative approaches to address the demand for additional storage facilities.

NEXT STEPS

EMERGENCY RESPONSE

TARGET RESOURCES.

Direct federal resources to assist local communities with capacity development. Capacity development should include training in the areas of hazardous materials storage, the import/export of hazardous materials and wastes, simulation exercises, and emergency response. It also should include providing resources for local emergency response equipment and tools. To adequately

maintain the level of alertness necessary, concerted efforts should be made to assist on an ongoing basis. Consider the possibility of setting priorities involving specific locations based on their commodities, level of risk, and amount by point of entry.

PROMOTE INTERACTION AT ALL LEVELS.

Promote the interaction of participating federal agencies with state and local regulators, particularly when compliance and enforcement authority lies with the state or local jurisdictions. Stress cooperative partnerships and a systemic approach, particularly at ports of entry, where initial indications of regulatory compliance can be gauged. Such partnerships also facilitate more coordinated contingency planning and community assistance in response to emergencies.

SUPPORT COMMUNITY CAPACITY-BUILDING AND PUBLIC EDUCATION.

Provide greater public access to data concerning hazardous materials and hazardous waste shipments across the border so that more border residents can join the effort to protect families and communities. Move forward on implementation of sister city contingency plans to improve notification systems, leverage resource allocation and use, and reduce risks. Consider the benefits of extending hazardous materials commodity studies to encompass larger areas, looking at possible models such as the study of the Calexico, California area.

RETURN OF HAZARDOUS WASTE

MAKE RETURNING HAZARDOUS WASTE A TOP PRIORITY FOR POLICY DISCUSSIONS.

The U.S. EPA and U.S. Trade Representative should identify this issue as a key matter for discussion in binational negotiations.

CONDUCT OUTREACH.

Provide more information via seminars, workshops, and other vehicles to the maquiladora industry on hazardous waste handling and disposal rules to clarify document and process requirements, and to enhance compliance with national and binational regulations.

MAKE OVERSIGHT MECHANISMS MORE RELIABLE.

Provide additional funding to U.S. border states to increase technical and enforcement capacity in the identification and tracking of cross-border hazardous waste traffic.

STRENGTHEN TRACKING SYSTEM.

Continue to fund the EPA Haztraks database and the counterpart national database in Mexico. Explore possibilities for merging these systems to obtain a complete cradle-to-grave picture in the binational setting.

STORAGE

SUPPORT EFFORTS TO CREATE AND MAINTAIN SAFE STORAGE FACILITIES.

Upgrade existing warehouses and build new facilities to accommodate increased demand, using a strategic planning approach. Provide more resources to hire inspectors and enhance their training.

ENCOURAGE BINATIONAL DIALOGUE TO ADDRESS INDEFINITE STORAGE IN MEXICO.

In the spirit of partnership, enable steps to be taken to carry out remediation work at existing hazardous waste sites of concern in Mexico. Encourage Mexican authorities to consider making adjustments to Mexican hazardous waste law so that finite and enforceable time limits are established for storage at generator facilities, storage facilities, recycling facilities, and transporter and treatment facilities.

Glossary of Hazardous Materials Terms

The terms below are defined as they are applied in the United States. Note that Mexico has its own definition of terms such as hazardous waste.

Hazardous chemical Includes any hazardous material that requires a Material Safety Data Sheet (MSDS) under the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard. This includes all chemicals listed: by OSHA with a permissible exposure limit (PEL); by the American Conference of Governmental Industrial Hygienists (ACGIH) with a threshold limit value (TLV); those listed in the National Toxicology Program Annual Report on Carcinogens; or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs, or by OSHA. Hazardous waste is not intended to be a hazardous chemical.

Hazardous material Under U.S. Department of Transportation (DOT) rules, a substance or material that has been determined to be capable of posing unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. The term includes hazardous substances, hazardous wastes, marine pollutants, elevated-temperature materials, materials designated as hazardous under Title 49 of the Code of Federal Regulations, Part 171.101 (49 CFR 171.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173.

Hazardous substance Elements, compounds, mixtures, solutions and substances, that when released into the environment may present substantial danger to public health and welfare or the environment. The term includes substances listed in 40 CFR 302.4. Covered under the federal Comprehensive Environmental Response,Compensation, and Liability Act (CERCLA), also known as Superfund. Note also that extremely hazardous substances are a set of chemicals subject to reporting, because they could cause death or irreversible damage after relatively short exposure to small amounts, generally in air. Covered under the Superfund Amendments and Reauthorization Act (SARA).

Hazardous waste Under the Resource Conservation and Recovery Act (RCRA), and defined in 40 CFR 261, a solid waste that, because of quantity, concentration, or physical, chemical, or infectious characteristics (a) causes, or significantly increases mortality or serious irreversible or incapacitating reversible illness; or (b) poses a substantial present or potential hazard to human health or the environment when improperly managed. A hazardous material can be a hazardous waste if it meets the criteria and/or definitions set forth under the implementing regulations for RCRA. To be a hazardous waste, a waste must first meet the definition of a solid waste. It should be noted that Mexico has a different definition of hazardous waste, and that some RCRA hazardous wastes, if intended for recycling, fall out of the regulatory framework.

Solid waste As defined by RCRA, any garbage, refuse, sludge, and other discarded material, including, solids, semi-solids, liquids, and contained gases.

Toxic waste Any hazardous waste that meets EPA's criteria for toxicity, which is based on the toxic properties of eight metals and 32 organic compounds.

Transportation Safety Requirements

The U.S. Department of Transportation (DOT) is responsible for issuing and enforcing federal regulations to ensure the safe transportation of hazardous materials. These regulations (49 CFR 100-800) address two broad requirements: containment and hazard communication. Containment rules establish a packaging system to ensure hazardous materials are packaged in containers strong enough to withstand the rigors of transportation without leakage. Communication rules define a system to inform regulated entities, emergency responders, and the public about the hazards associated with these materials in transit. They include package marking and labeling, vehicle placarding, and providing emergency response telephone numbers and information with the shipment.

To enhance safety, these rules also specify training requirements for persons offering or transporting hazardous materials in commerce. In the event of an incident, carriers are required to provide reports to DOT. For serious incidents, a telephonic report is required to the Department's National Response Center, followed by a written report. For less serious releases, a written report must be submitted.

Fifth Report of the Good Neighbor Environmental Board
to the President and Congress of the United States

RECOMMENDATIONS IN CONTEXT

HEALTH EFFECTS

The recommendations in this Fifth Report to the President and Congress, to improve air quality, strategically manage water resources, and encourage safe handling of hazardous materials, can be fully enacted only if the underlying environmental infrastructure is sound. In turn, sound environmental infrastructure is a prerequisite for healthy border communities, a goal that must remain at the top of the national policy agenda.

The issue of water quality provides one of the most potent examples of the link between the region's environmental infrastructure and the health of its inhabitants. Existing public infrastructures including water systems, sewage systems, and solid waste and wastewater treatment facilities, have been unable to sustain the rapidly growing border populations. A number of border residents continue to be exposed to untreated and contaminated water, increasing their risk of adverse health effects and disease. For instance, 13 percent of Texas's colonias population is without adequate plumbing, compared to the national average of five percent (Bruhn, J.G. & Brandon, J.E., 1997). The increasing number of maquiladoras also strains existing wastewater and solid waste infrastructures, particularly in terms of industrial wastes.

Health statistics bear out the claim that there is a negative fall-out from this lack of water infrastructure. One such example is hepatitis A, a disease transmitted by water and sewage. The hepatitis A rate in the U.S. border region in recent years of 25.2 per 100,000 is nearly three times the national rate of 8.6. In Mexico, the incidence of hepatitis A is also higher in the border region than the entire country, at 27 versus 19.6 per 100,000 (U.S. Department of Health and Human Services).

Air pollution along the border also provides a strong case in point for the link between environmental infrastructure and health. In addition, the links between particular sources of air pollution and health problems underlines the need for a closer working relationship among policymakers from the transportation, energy, and environmental sectors.

Particular border communities have particular air pollution and resulting health problems. For example, during the colder months, air quality in the El Paso-Ciudad Juárez air shed worsens from a variety of sources. Contributors include vehicular exhaust at congested international crossing points, unpaved roads, open fires and the emissions from many of the industrial plants in the vicinity (Blackman and Bannister, 1998). In addition, many border residents in the area live in substandard housing and use whatever fuels they can obtain to keep their homes warm. Generally, these materials are of poor quality, such as sawdust or scrap wood that may have been chemically treated. As a result, the pollutant-laden smoke produced from these fuels contributes to the overall air pollution levels and is more likely to have adverse health effects on children.

One of the health problems of greatest concern is asthma. Asthma is the most common cause of childhood hospitalization in the U.S. And although it is difficult to obtain comprehensive asthma prevalence data for the U.S.-Mexico border region, its presence as a serious health problem is undeniable. For instance, a study of childhood asthma hospitalizations from 1983 to 1994 revealed that Imperial County, California, had asthma-related hospitalization rates that were, on average, two to three times higher than the rest of the country. Significantly, during the study period, maximum ozone levels in the region increased by 64 percent, and PM_{10} levels exceeded the state and national air quality standards every year, except 1987 and 1992.

Air pollutants such as ozone and particulate matter can exacerbate asthma and other respiratory conditions, leading to increased use of medication and more doctor visits. Ozone exposure can also lead to increased susceptibility to respiratory infections and inflammation and damage to the lining of the lungs. Exposure to soot and dust, commonly referred to as particulate matter, is associated with serious health effects, including premature death from respiratory and cardiovascular diseases, as the fine particles can be permanently lodged in the lungs. Additionally, exposure to carbon monoxide is a risk for individuals suffering from cardiovascular diseases and elevated levels are associated with reduced work capacity, lethargy, and visual impairment.

Power plant emissions have the potential to create several types of health problems resulting from poor air quality. Oxides of nitrogen (NO_x) constitute one of the principal power plant emissions of concern due to its role in ozone formation. NO_x combines with volatile organic compounds (VOC) in the atmosphere to form ozone, the main component of smog. Short-term exposure to high ozone levels can cause acute respiratory problems, and long-term exposure can cause lung damage. Ozone is also an irritant that facilitates lung damage by other pollutants such as sulfur dioxide and PM_{10}. NO_x also contributes to the formation of PM_{10}, which is associated with asthma attacks, increased susceptibility to respiratory infections, lung damage, premature death, and possibly cancer. Exposure to NO_x itself, even at low to moderate concentrations, can affect lung function of healthy individuals and can cause asthma attacks. Uncontrolled, a power plant can also emit significant amounts of carbon monoxide (CO), which also may be of concern.

Studies of other individual border communities further demonstrate the air quality/public health connection. For instance, a recent study of acute pediatric respiratory illness in the El Paso de Norte air shed found that the daily number of asthma related emergency room visits in children aged one to 17 years was associated with ambient PM_{10} concentrations ("Ambient Air Quality and Acute Pediatric Respiratory Illness in the Paso del Norte Air shed", Vanderslice, J. et. Al. 1998.)

Moreover, in sister cities Ambos Nogales, an extensive binational study of air quality included a binational risk assessment. Findings showed that typical exposure to PM_{10} in those communities could potentially increase asthma episodes and adverse respiratory effects by as much as eight percent on both sides of the border. Also reported was an increase in the rate of premature death from cardiovascular and respiratory causes by as much as four percent and 11 percent, respectively. These rate increases correspond to five premature deaths in Nogales, Arizona and 42 in Nogales, Sonora every year ("Ambos Nogales Binational Air Quality Study - Citizen's Summary", by the Arizona Department of Environmental Quality, 1999).

During 2001, several health-related initiatives that offer great promise made their presence known on the binational and national policy-making scene. The first, the establishment of a U.S.-Mexico Border Health Commission, bodes very well for binational cooperation and partnerships around health issues.

Incidentally, establishment of such a commission was among the former recommendations made by this Board. The Board looks forward to working with the Commission as it sets its health agenda for the border region. It commends the Commission for its decision to develop measurable environmental health targets for the border under its "Healthy Border 2010" Program.

The other initiative that deserves attention is the Presidential Task Force on Children's Environmental Health and Safety, which is co-chaired by the U.S. Environmental Protection Agency (EPA) Administrator Christine Whitman and the Department of Health and Human Services (DHHS) Secretary, Tommy Thompson. The Task Force met for the first time on October 24, 2001 and includes 14 other Cabinet departments and White House agencies. Among its responsibilities will be to coordinate and oversee ongoing federal research projects that investigate the causes of childhood asthma. It also will oversee monitoring efforts at the regional, state, and local levels.

Ongoing federal efforts to address childhood asthma include an "Action Against Asthma" strategic plan developed by DHHS. One component of the plan is to eliminate the disproportionate health burden of asthma in minority populations and those living in poverty.

The border region's environmental infrastructure and the health of its inhabitants are undeniably linked.
Photo credit: Rebekah Hoffacker, EPA.

Infrastructure and Institutions: BECC and NADBank

Good community health depends upon a strong local environmental infrastructure. In the same way, local infrastructure remains strong only if policies make infrastructure a priority and if institutions are in place to carry out that priority.

For the border region, two of the most critical environmental infrastructure institutions in existence are the Border Environmental Cooperation Commission (BECC) and North American Development Bank (NADBank). Created in 1993 through an agreement between the governments of the United States and Mexico as part of the North American Free Trade Agreement (NAFTA), BECC and NADBank have been responsible for the beginnings of many of the region's infrastructure projects in recent years. During 2001, both institutions came under intense scrutiny as their activities, and even their underlying missions, were reinspected.

In the view of the Good Neighbor Environmental Board, both of these institutions deserve continued support from the highest levels of government. Specifically, the Board recommends the following actions be taken to maximize the utility of BECC and NADBank:

1) Continue to support BECC and NADBank as independent, sister institutions but improve their singular effectiveness and their collective ability to support infrastructure development. Do not combine the boards, but instead, consider developing an integrated subset of the two boards to jointly resolve common issues and strengthen progress. For both institutions, strengthen strategic planning to address future border-region growth. Maintain the involvement of EPA, Mexican Ministry of the Environmental and Natural Resources (SEMARNAT), and the International Boundary and Water Commission (IBWC).

2) For the BECC, maintain public input as a critical factor in the approval process. Continue to focus on technical assistance, which is highly valued by small communities in particular, and ensure that technical assistance continues beyond the certification phase through project completion and operation. Clarify and communicate BECC policies and procedures so that communities clearly understand every step in the certification and construction process, and can proceed with less dependence on staff.

3) For the NADBank, encourage policies and procedures that will make it more service-oriented and responsive to communities. Put more resources into outright grants, repayable grants, and low-interest loans so that NADBank loans are more affordable to the economically- disadvantaged communities it was designed to serve. Ensure that grants and loans are processed within a reasonable and specific time frame. Ensure that NADBank more effectively leverages additional funding as part of the community development process.

Environmental infrastructure includes water supply, treatment, and distribution; wastewater collection, treatment, and disposal; solid and hazardous waste handling, storage, and safe elimination; and air quality monitoring equipment and emissions reduction programs.

(Source: Southwest Center for Environmental Research and Policy (SCERP), Border Institute II Rio Rico Report, April 2000.)

Fifth Report of the Good Neighbor Environmental Board

to the President and Congress of the United States

2001 Business Report

Meetings

Good Neighbor Environmental Board (the Board) held three public meetings along the U.S.-Mexico border during 2001, all of which were organized around a particular environmental theme. Each included presentations from speakers, informative public comment sessions, an update from the Board's counterpart advisory group to the Mexican Ministry of the Environmental and Natural Resources (SEMARNAT); a business meeting component; and an optional field trip to learn more about local environmental issues. (In addition, the Board also held a Strategic Planning Workshop early in the year to assess its progress and set its goals for year.)

Summaries of the three border-region meetings follow:

The first meeting was held in Yuma, Arizona, from March 21-22 at the Shilo Inn and Conference Center. The theme for this meeting was pesticides. The meeting opened with a welcome from Marilyn Young, the Mayor of Yuma. Other public attendees and speakers included representatives from the following: Cocopah and Quechan tribes and the Intertribal Council of Arizona; a binational university consortium, Southwest Center for Environmental and Research Development (SCERP); Arizona Department of Environmental Quality and the Department of Agriculture; EPA's Region 9 Office; Yuma County Long Range Planning; Yuma County Water Users Association; the U.S. Geological Survey; University of Arizona; a non-governmental health organization called Puentes de Amistad; Yuma Area Agricultural Council; Gowan Company; the Binational Health Commission; North American Development Bank (NADBank); and other interested members of the public and organizations. Media coverage included spots on the evening news of local stations Channel 11 KYMA and Channel 13 KSWT, as well as a newspaper article in the *Yuma Daily Sun*.

Board members benefit from the public input they receive during meetings along the border.

Photo credit: Geraldine Brown, EPA.

The second meeting, with water as its theme, took place in San Diego, California, from July 25-26 at the Horton Grand Hotel. It began with an official welcome from Rudy Fernandez of the Mayor of San Diego's office, followed by speakers from the following institutions: City of San Diego Technical Services Division; State of Baja California Department of Ecology; Border Environmental Cooperation Commission (BECC); NADBank; SCERP; and U.S. EPA's border program. Local officials, including Assemblyman Juan Vargas and Congressman Bob Filner, sent representatives, and the Director of the California Governor's Office for CA-MX Affairs attended. Other attendees included representatives from the non-profit and private sectors. One of the outcomes of the meeting was a letter from the Chair and the Board to the U.S. President and Congress requesting that the Board be involved in discussions about potential changes to BECC and NADBank. The *Los Angeles Times* published an article on the meeting and the letter.

The third and last Good Neighbor meeting along the border during 2001 took place in Laredo, Texas on October 10-11, 2001. This meeting had two themes: transportation, and rural issues. It was dedicated to the memory of former Board member Linda Smith, who tragically died on August 24, 2001. The first day began with greetings from Eliseo Valdez, Jr., Mayor Pro Tempore of District 5 of Laredo. Then, a series of speakers addressed local environmental issues such as truck crossings at the local international bridges, emergency preparedness, warehouse storage of hazardous materials, and conservation-based uses of ranching and grazing land in the area. Organizations represented as speakers or attendees included the following: Rio Bravo RC&D Council, Center for Grazing Lands and Ranch Management, Texas-Mexico Border Community-Based Organization, Laredo Local Emergency Preparedness Committee (LEPC), EPA Region 6 Office, Texas Department of Transportation, Administrator for the Kickapoo Tribe, National Wildlife Federation, and others. During the afternoon, the Board hosted a special public comment session devoted exclusively to obtaining public input on the roles of BECC and NADBank. The meeting received news coverage from two local television stations, one called Univision and the other a local affiliate of NBC News.

Fifth Report of the Good Neighbor Environmental Board
to the President and Congress of the United States

Comment Letters

In addition to preparing its Fifth Report to the President and Congress, the Board also issued a series of comment letters during 2001 on several key border-region topics.

The text of these letters follows:

Topic: BECC and NADBank

(To Border Environmental Cooperation Commission [BECC]/North American Developlment Bank [NADBank] re mandate expansion)

April 25, 2001

Mr. Donald Hobbs, BECC General Counsel, P.O. Box 221648, El Paso, TX 79913

Dear Mr. Hobbs,

The Good Neighbor Environmental Board thanks you once again for the opportunity to provide ideas on potential pilot projects in the new areas included under BECC and NADB's expanded mandate.

We discussed your invitation to comment during our recent meeting in Yuma, Arizona, on March 21-22. After careful deliberation, the Board decided that it was not currently in a position to submit specific pilot project recommendations without first gaining a clearer understanding of the following issues:

- We understand that the primary purpose of the mandate expansion is to develop environmental projects in which NADB financing at non-subsidized rates would be viable. Given that there already is a waiting list for project development funding, how would funding for these pilot projects be handled? What, if any, would the effects be on the existing pool?
- Will technical assistance to communities be provided in-house? If not, would BECC/NADB be willing to reimburse other technical assistance entities or provide funds to communities (as it does in some other cases) to obtain their own assistance?
- Will expanded mandate activities be carried out with the same transparency as prescribed for other portions of the program? We presume the answer is yes, but please confirm.
- How would pilot project funding and operations relate to the 501(c)(3) North American Development Foundation?

The Board would greatly appreciate a response to its questions. We look forward to your response.

Sincerely,
Judith M. Espinosa, Chair

cc Raul Rodriguez, NADB Managing Director

(To President Bush requesting involvement in BECC/NADBank Discussion)

July 26, 2001

The President, The Vice President, The Speaker of the House
Re: Border Environmental Cooperation Commission (BECC) and North American Development Bank (NADBank) Strategic Objectives

Dear Mr. President,

As your advisory board on border environmental and infrastructure issues, we request to be included in the current consultative process related to the future structure and direction of the BECC and NADBank.

It has come to our attention that your administration and that of Mexico's President Fox are now actively considering proposals as to both the form and substance of these border organizations in anticipation of the Binational Commission meeting on September 4 and the State visit on September 5.

We understand your interest in enhancing the performance of the organizations and in discussing substantive proposals with President Fox. For this reason, we recommend that you incorporate the following in your policy discussions:

- Ensure public participation by border community representatives in the consultative process related to any proposed restructuring, reorganization or refocusing of the BECC and NADBank.
- Maintain the integrity of the original mission, intent, and objectives of these organizations.

While we support improvements in project planning and financing along the border, significant infrastructural needs remain that may rely on the assistance and support of the BECC and NADBank. In addition, the public participation in border environmental and development projects is of great importance for the quality of life of the 12,000,000 residents in these communities.

For these reasons, we respectfully request the opportunity to review the proposals and assist you in achieving the above objectives.

Sincerely,
Judith M. Espinosa, Chair

(Input to Binational Working Group charged with providing Presidents Bush and Fox advice on BECC and NADBank)

October 26, 2001

Binational Working Group, c/o Marico Sayoc, US Environmental Protection Agency ,1200 Pennsylvania Avenue NW, Washington, DC 20460

Dear Representatives of the Environmental Protection Agency, the State Department, and the Department of Treasury,

The Good Neighbor Environmental Board (GNEB) commends the Bush Administration for conducting public comment sessions on how to strengthen the Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank). Public input is critical to an open evaluation process. As you may know, GNEB co-hosted one of these special sessions during our October 10, 2001 meeting in Laredo, Texas. Officials from the U.S. Environmental Protection Agency (EPA), the State Department, and Treasury were present to hear the input on behalf of the binational working group charged with reporting back to Presidents Bush and Fox by October 31st.

The Board also wishes to provide its own input into the public comment process. In its capacity as a federal advisory board that makes recommendations to President Bush and Congress on environmental infrastructure and sustainable development issues along the U.S. border with Mexico, the Board* recommends that the following steps be taken to strengthen BECC and NADBank performance:

1. Continue to support BECC and NADBank as independent, sister institutions but improve their singular effectiveness and their collective ability to support infrastructure development. Do not combine boards for the two institutions. Instead, consider developing an integrated subset of the two boards to jointly resolve common issues and strengthen progress. For both institutions, strengthen strategic planning to address future border-region growth. Maintain the involvement of EPA, SEMARNAT, and the IBWC.

2. For the BECC, maintain public input as a critical factor in the approval process. Continue to focus on technical assistance, which is highly valued by small communities in particular, and ensure that technical assistance continues beyond the certification phase through project completion and operation. Clarify and communicate BECC policies and procedures so that communities clearly understand every step in the certification and construction process and can proceed with less dependence on staff.

3. For the NADBank, encourage policies and procedures that will make it more service-oriented and responsive to communities. Put more resources into outright grants, repayable grants, and low-interest loans so that NADBank loans are more affordable to the economically- disadvantaged communities it was designed to serve. Ensure that grants and loans are processed within a reasonable and specific time frame. Ensure that NADBank more effectively leverages additional funding as part of the community development process.

Finally, on a more general note, we understand that the deadline for the public comment period is October 31st. We are concerned about creating such a short time frame to determine the future of two of the most pivotal border institutions. We encourage you to extend the deadline for public input. More time is needed to fully develop a strategic approach that reflects full public input and maximizes the effectiveness of BECC and NADBank.

Should you have any questions or need additional information, please contact either myself, the Chair of the Board, or Elaine Koerner, who serves as the Board's Designated Federal Officer. Our contact details are above.

Sincerely,
Judith M. Espinosa, Chair

Topic: Border Environmental Infrastructure Fund (BEIF)

March 28, 2001

The President, The Vice-President, The Speaker of the House
The White House, Washington, DC 20500

RE: Budget Appropriation for the Border Environment Infrastructure Fund (BEIF)

Dear Mr. President:

The Good Neighbor Environmental Board strongly urges the appropriation of a specific budget line item of $100 million for the U.S. Environmental Protection Agency's (EPA) Border Environment Infrastructure Fund (BEIF) in the federal budget for fiscal year 2002.

U.S./Mexico Border Environmental Infrastructure Needs and the BEIF Program

The Border Environment Infrastructure Fund (BEIF) is an EPA-funded North American Development Bank (NADB) program. This program is designed to make environmental infrastructure projects affordable for communities throughout the U.S.-Mexico border region by combining grant funds provided by EPA with loans or guaranties for projects that would otherwise be financially unfeasible. Environmental infrastructure projects considered for funding by the NADB must be certified by its sister organization, the Border Environment Cooperation Commission (BECC). Both of these institutions were created under NAFTA specifically to help address the environmental infrastructure deficiencies in the U.S.-Mexico border region.

Originally envisioned as a seven-year program with $100 million appropriated in grants each year, the BEIF has been considerably reduced in the past three years. For fiscal year 1999, the BEIF allocation was $75 million. It was $50 million for fiscal years 2000 and 2001.

This decrease in EPA BEIF appropriations is in direct contrast to the increase in funding needs for environmental infrastructure: NADB projections for environmental infrastructure funding needs were $192.1 million for 1999, $213.6 million for 2000 and $739.2 for years 2001-2003. Of these overall projections, NADB estimates that for the period covering 1999-2003, grant funding needs from BEIF will exceed $560 million, and at least another $500 million for the period covering 2004-2009, with total project costs estimated to exceed $1 billion during this second five-year period. In summary, these needs far exceed the amount of funds that have been allocated for the BEIF program in recent years.

Role of the Good Neighbor Environmental Board

The Good Neighborhood Environmental Board (GNEB) is a federal advisory committee created to advise the President and the Congress about environmental and infrastructure issues and needs within the states contiguous to Mexico. It was created by the Enterprise for the Americas Initiative Act of 1992 (EAIA) (7 U.S. Code Section 5404). Board membership includes representatives from federal agencies; the state governments of Arizona, California, New Mexico, and Texas; the business sector; the tribal sector; and community development, academic, health, environmental, and other non-governmental entities. A Presidential Executive Order delegates implementation authority to the Administrator of the U.S. Environmental Protection Agency (EPA). The GNEB operates under the Federal Advisory Committee Act (FACA) and meets three times annually at locations along the U.S./Mexico border.

Conclusion

The Good Neighbor Environmental Board strongly recommends that a specific budget line item of $100 million be appropriated for the EPA BEIF grant program. It puts forward this recommendation in its capacity as advisor to the President and Congress on environmental and infrastructure needs for the U.S./Mexico border region.

The Board urges this step be taken because of the diminishing funding sources allocated to address these needs. Though such an appropriation would not address all of the environmental infrastructure needs, it certainly would assist in mitigating continued degradation of the environmental conditions within the region. These improvements are vital to the quality-of-life conditions that promote sustainable development in an increasing populated region that is the heart of economic trade between the U.S. and Mexico.

The Board appreciates the opportunity to offer this funding recommendation and looks forward to a response. GNEB welcomes ongoing dialogue on the implementation process for the appropriation of funds for the BEIF program and related issues.

Respectfully yours,
Judith M. Espinosa, Chair

cc: Christine Whitman, Administrator, U.S. Environmental Protection Agency
John Howard, President's Council on Environmental Quality; Senators, States of Arizona, California, New Mexico, and Texas
Chair, Border Governors' Association; Chair, Western Governor's Association; Chair, Hispanic Congressional Caucus Chair
Chair, Border Trade Alliance Environment Committee; Chair and Members, Congressional Border Caucus; Chair, Senate Appropriations Subcommittee on VA, HUD, & Independent Agencies; Chair, House Appropriations Subcommittee on VA, HUD, & Independent Agencies

Topic: Counterpart Mexican Advisory Group

(To Secretary Lichtinger supporting proposed reconstitution of Consejo)

May 21, 2001

Honorable Victor Lichtinger, Secretario del Medio Ambiente y Recursos Naturales, Lateral del Anillo Perferico Sur
4209 Sexto Pisa, Fracionalmente Jardines en La Montaña, México, DF 14210

Estimado Secretario Lichtinger:

It is with pleasure that I write to you on behalf of the Good Neighbor Environmental Board (GNEB), a federal advisory committee

created to counsel the U.S. President and Congress on sustainable environmental and infrastructure needs along the US/México border.

Since 1997, the GNEB has been actively engaged in dialogue and coordination efforts with our Mexican counterpart, Consejo Nacional Asesoría para el Desarrollo Sustenable de la Región I. This has been a productive relationship thanks to members on both councils. In particular, Señor Oscar Romo, has served as the primary Consejo liaison with GNEB over the years and a chief proponent of collaborative efforts.

GNEB understands that you may be reconstituting the Consejo with new membership and policy direction under your leadership. At our last meeting in March 2001, the GNEB members discussed our enthusiasm for continuing collaborative efforts with such a newly organized Consejo under President Fox' administration. GNEB finds it valuable to continue environmentally sustainable cooperative efforts with our counterparts in México.

The next meeting of GNEB is in San Diego the last week in July. We would welcome a visit from your appointed liaison and would provide time at the meeting to discuss future activities.

I look forward to a productive discourse with your office and newly appointed Consejo. I thank you for your continuing support for collaborative efforts to achieve sustainable development along our borderlands.

Sincerely,
Judith M. Espinosa, Chair

(Follow-up to Secretary Lichtinger expressing appreciation for reconstituting Consejo)

November 16, 2001

Honorable Victor Lichtinger, Secretario del Medio Ambiente y Recursos Naturales, Lateral del Anillo Perferico Sur, 4209 Sexto Pisa, Fracionalmente Jardines en La Montaña, México, DF 14210

Estimado Secretario Lichtinger:

It is with pleasure that I write to you on behalf of the *Good Neighbor Environmental Board (GNEB)*, a federal advisory committee created to counsel the U.S. President and Congress on sustainable environmental and infrastructure needs along the US/México border.

Since 1997, the GNEB has been actively engaged in dialogue and coordination efforts with our Mexican counterpart, *Consejo Nacional Asesoría para el Desarrollo Sustenable de la Región I.* This has been a productive relationship thanks to members on both Councils. GNEB would like to thank you for reconstituting the Consejo with new membership and policy direction under your leadership. Sr. Oscar Romo provided an update at our last meeting in Laredo/Nuevo Laredo indicating that the newly established entity is *the Consejo Consultivo para el Desarrollo Sustenable de la Frontera Norte*. Sr. Romo provided us with an overview of the *Consejo* and other policies which you have begun to institute for the Frontera Norte. GNEB members discussed our enthusiasm for continuing collaborative efforts with the newly organized Consejo in order to promote environmentally sound and sustainable development activities.

GNEB is planning to have a joint meeting with the Consejo in Ciudad Juarez next year in May 2002. We would welcome a visit from you and your appointed liaison(s) to discuss Mexico's vision for US/Mexico border sustainable development efforts. We will work with your Consejo liaison to develop a progressive agenda. GNEB looks forward to continued productive discourse with your office and the newly appointed Consejo members.

I thank you for your continuing support for collaborative efforts to achieve sustainable development along our borderlands.

Sincerely,
Judith M. Espinosa, Chair

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Darrin Swartz-Larson (see Alternates)

Roster as of 12/3/01

GLOSSARY: Key Border-Region Terms

- **Binational Commission** (BNC) - Established in 1981 as a forum for regular cabinet-level exchanges between the U.S. and Mexico. The BNC meeting in 2001 provided a venue for discussing current border issues.
- **Border Environmental Cooperation Commission** (BECC) - Binational institution that works with border communities to develop and implement local environmental infrastructure projects such as wastewater treatment plants and solid waste landfills. Certifies projects that then can be submitted to the North American Development Bank (NADBank) for financing. Created as a result of the environmental side agreement of the North American Free Trade Agreement (NAFTA).
- **Border XXI Program** - Binational coordinating mechanism which brought together U.S. and Mexican federal, state, and tribal agencies to address border environmental and human health issues. The program ran from 1996-2000 and was led by two national coordinators, one from each country's federal environmental agency. Its goal was to work cooperatively toward sustainable development through the protection of human health, and the environment, and proper management of natural resources in both countries. The next binational border program is currently being developed, with discussions focused on enhanced state and tribal leadership and participation.
- **colonias** - Unincorporated communities with substandard housing and poor living conditions found along the border, mostly in Texas and New Mexico. Over 300,000 people in Texas, and 40,000 people in New Mexico live in such settlements. These communities often lack basic public services such as potable water, wastewater collection, solid waste disposal, and paved roads.
- **Commission for Environmental Cooperation** (CEC) - Tri-national organization – Canada, the United States, and Mexico – created under the NAFTA environmental side agreement. EPA Administrator Christine Whitman is the U.S. representative on the Commission's three-member Council. Its mission is to address regional environmental concerns, help prevent trade and environmental conflicts, and promote the effective enforcement of environmental law.
- **Consejo Region 1** - The former Mexican advisory group whose mission was roughly equivalent to that of the Good Neighbor Environmental Board. Under the current Environment Secretary, Victor Lichtinger, the group is being reconstituted as the Consejo Consultivo para el Desarrollo Sustenable de la Frontera Norte, the Advisory Council for the Sustainable Development of the Northern Border.
- **International Boundary and Water Commission** (IBWC) - IBWC is an independent binational organization responsible for applying and enforcing binational treaties on boundaries and waters, and resolving conflicts that result from their implementation. It issues statements called Minutes that describe its current policies.
- **maquiladoras** - Assembly plants located in Mexico, mostly along the northern Mexican border. Under the typical scenario, materials are exported from a foreign country, primarily the U.S., to these plants, where they are assembled into finished products and then imported back into the county of origin for sale. The development of the maquiladora industry largely results from the trading terms agreed upon under NAFTA.
- **La Paz Agreement** - Agreement for the Protection and Improvement of the Border Area, signed in 1983, by Presidents Reagan and De la Madid, in La Paz, Mexico. It is the formal foundation for U.S.-Mexican collaborative environmental efforts, including the current program being developed. It defined the U.S.-Mexico border area as the region extending 100 kilometers on either side of the international boundary, between the U.S. and Mexico.
- **North American Development Bank** (NADBank) - Established under NAFTA, this border institution's role is to facilitate financing for the environmental projects that BECC certifies.
- **North American Free Trade Agreement** (NAFTA) - Signed by Canada, the United States, and Mexico in 1993, its provisions encourage enhanced trade among the three countries. To build in environmental safeguards, an environmental side agreement was drawn up that is administered by the CEC, and led to the creation of BECC and NADBank.
- **Rio Bravo** - The Mexican name for the river known in the U.S. as the Rio Grande River.
- **SEMARNAT** - The acronym for Mexico's Ministry of the Environment and Natural Resources.
- **Sister Cities** - Pairs of cities that are located across the U.S.-Mexico border from each other, and therefore have many environmental issues in common. Examples include San Diego, California and Tijuana, Baja California; Nogales, Arizona and Nogales, Sonora; and El Paso, Texas and Cuidad Juarez, Chihuahua (which often work in partnership with nearby Las Cruces in Dona Ana County, New Mexico).
- **Ten States** - Coalition of state environmental agencies from the four U.S. border and the six Mexican border states: California, Arizona, New Mexico, and Texas; and Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas.

Sources: Border Information and Outreach Service (BIOS) Action Kit, January 2001; BECC pamphlet, September 2001; www.epa.gov.